

**Information Technology Working Group
Efficiency Task Team Report
of the
General Government Subcommittee
of the
Government Efficiency Commission**



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1. Introduction

1.1 Background

The Information Technology Working Group (ITWG) of the General Government Subcommittee of the Indiana Government Efficiency Commission was formed in December 2003 to examine the use of Information Technology (IT) within state government. The Indiana Legislature created the Government Efficiency Commission for the purpose of reviewing all state funded agencies, departments and programs to make recommendations to improve efficiency and reduce waste or costs.

As was the case with other commission Working Groups, ITWG was comprised of volunteers from the private sector. ITWG volunteers contributed hundreds of hours and made numerous sacrifices to contribute to improving the strategic and tactical operation of Indiana state government.

We would like to express our sincere gratitude for the tremendous support we received from agencies, major state vendors and, especially, Laura Larimer of the Division of Information Technology (DOIT) and Sean Fahey representing Peak Performance. All agencies, vendors and assorted state officials participated willingly and tolerated numerous naïve questions about government operations, surveys and meetings despite time pressures and conflicting demands. We could not have been as successful as we have without their support.

1.2 Purpose

Information technology is used extensively throughout state government with implementations which range from the innovative, effective use of sophisticated, state-of-the-art technologies to those based on obsolete technologies with which it is difficult to communicate, interface, extend and maintain. As a result of agency autonomy and agency-specific IT budgeting, approaches to IT vary widely across and, even, within agencies. Many inefficiencies and missed opportunities to leverage technology which we encountered are the result of each agency focusing primarily on their own internal needs without an incentive to develop single solutions to problems shared by multiple agencies.

Although there exists a state-level IT Oversight Commission (ITOC) and Division Of Information Technology (DOIT), they lack budgetary and organizational authority to enact statewide IT policies and practices. ITOC and DOIT review proposed purchases and make recommendations for application of standards, policies and procedures but are unable to enforce their use. Moreover, strategic issues currently assigned to ITOC and DOIT do not have direct visibility and priority at the highest levels of state government. The lack of a single, central authority results in inconsistent application of IT principles, myriad solutions to fundamental IT needs common to all agencies, redundant services and staff, barriers to inter-agency processes and a statewide enterprise in which the units of government are operating at widely differing levels of effectiveness and efficiency. Although these phenomena are prevalent

among separately elected agencies which exercise a high degree of authority outside the purview of the governor, the same conditions exist throughout state government.

Even though, from a macro level, the state faces challenges in the effective and efficient use of information technology, there are many pockets of exemplary use of IT. We believe ITWG's purpose was not only to expose inefficiencies and opportunities for improvement but to highlight cases which might serve as models for the enterprise application of IT as well as examples of how individual agencies can utilize new information technology solutions to improve their efficiency, make their people more productive and connect citizens directly to government services.

For example, accessIndiana and Department of Revenue have received numerous awards for the use of information technology and for how they have utilized IT to enable them to better serve citizens. For an extensive list of significant state IT-related accomplishments see "Examples of Improving Efficiency Through IT" later in this report.

Due to the Government Efficiency Commission's part-time, voluntary charter, it was necessary for ITWG to limit the purview and scope of the Working Group's investigation. ITWG members focused the group's efforts on key strategic issues which we believed would have the most significant long-term impact. We did not have the time or resources to examine tactical IT issues and program-specific opportunities for improved government efficiency which might be realized through new or better utilization of IT. Such investigation was left for internal state efficiency initiatives such as Peak Performance and targeted consulting engagements conducted by external entities.

Finally, we endeavored, from a strategic perspective, to identify areas in which the state could achieve significant savings, use modern technology to create new or more efficient revenue streams, reduce costs or superfluous staff and, generally, make state employees more productive.

The results of ITWG's investigation and analyses were compiled into this findings report with the purpose of making recommendations to the governor, legislators and other state officials to improve efficiency.

2. Objectives

2.1 ITWG Objectives

The following objectives were established during the formative stages of ITWG to provide a common purpose for the team, guide members in the application of generally accepted principles and best practices, and endeavor to ensure consistency of examination methodologies throughout the process.

2.1.1 Identify information technology strategies required to support target agencies and describe the current state of IT within those agencies.

2.1.2 Develop an understanding of target agencies' services and identify ways information technology can potentially be used to improve quality of service, reduce costs or increase revenue generating opportunities.

2.1.3 Identify opportunities to standardize, share or otherwise improve IT business processes and capabilities within and across target agencies to lower total delivered costs of information technology solutions for the State of Indiana.

2.1.4 Develop a set of observations and recommendations for improving delivery of IT-based capabilities in a more cost effective manner.

2.1.5 Understand key constraints affecting the ability to implement recommended changes. Seek methods for mitigating constraints and organizing initiatives to achieve the desired outcomes of the recommendations.

3. Approach

3.1 Approach Description

After formation in December 2003 and two initial organizational meetings, ITWG met biweekly from January through August 2004 to conduct interviews, discuss findings, examine results, debate approaches and, generally, learn much about the inner workings of state government including how government does and does not utilize information technology.

To accomplish our charter, ITWG conducted 14 team meetings, presided over 10 vendor interviews and 14 agency interviews, received testimony from more than 40 witnesses, distributed and compiled the results of 60 agency surveys and volunteered hundreds of staff-hours to perform various preparatory, investigative and analytical tasks.

In addition, ITWG members consulted with leading IT industry analysts such as Gartner Group to learn best practices for state government and, based on Gartner's research and experience in other states, to validate ITWG's findings in Indiana.

Due to time and resource constraints ITWG was only able to investigate the executive branch of state government including the administrative agencies (those headed by separately elected officials). However, anecdotal evidence from a number of interviews and conversations, indicate similar challenges and issues exist in the judicial and legislative branches as those identified within the branches examined by the Working Group.

The scope of our accomplishments was limited by the demands of each member's work duties and travel schedule.

4. Challenges

4.1 Challenges

During our investigation, ITWG encountered several challenges to acquiring supporting financial data and identifying clear organizational imperatives for implementing technologies statewide. Even the inability of the government culture to recognize the importance of those two key requirements obscured ITWG's ability to mine information. Additionally, we learned of structural and organizational barriers to the efficient and effective use of information technology which would require legislative action as well as executive/administrative branch reorganization to remedy (i.e., both agencies whose head is appointed by the governor and those headed by separately elected officials).

The challenges we encountered were not the result of lack of cooperation with ITWG or a lack of desire to improve state efficiency but rather inadequate systems – both IT *and* business process-related – for properly accounting for expenditures; redundant yet incompatible systems across agencies; the absence of an enterprise (statewide, cross-agency) perspective on information technology strategy, procurement, deployment and management; a general lack of top executive sponsorship required to ensure the success of major statewide IT initiatives and guide the effective use of IT as part of the state's governing strategy; and, a naiveté about the value of continuous improvement.

Following are specific examples of challenges encountered which themselves highlight opportunities for improvement by government officials:

Inability to 'follow the money' – The first question ITWG asked of state officials was "How much does the State of Indiana spend on IT and on what do we spend it?" We were chagrined to learn that state officials don't know what Indiana spends at a statewide level. For example, DOIT provided ITWG with a chart which showed that in 2003 the state spent \$246,000,000 on IT services, personnel, supplies and equipment. In an extensive presentation, the Auditor's office provided data which indicated Indiana spent approximately \$83,000,000 during the same period. Officials from FSSA provided credible data corroborated from multiple sources that the IT budget for their agency alone is \$125,000,000. FSSA's data would imply that on the whole the state spends significantly more than either of the other two estimates. This condition points to the urgent need for better management processes. Without knowing what the state spends on information technology by various categories, ITWG was unable to identify potential savings associated with Working Group recommendations or cost-justify specific money-saving initiatives.

Absence of a common financial foundation – Two issues which we suspect inhibited progress of all General Government Subcommittee Working Groups were: 1) the absence of a universal, sufficiently detailed chart-of-accounts which could be used to actively manage state operations and serve as a common language for collaboration among agencies; and, 2) a widely adopted enterprise resource planning (ERP) system such as Peoplesoft to automate accounting processes

consistently across state government and provide ready access to critical operational data to support decision making by hundreds of state government managers. Besides severely limiting the daily effectiveness and efficiency of state officials, lack of a common financial foundation and data analysis tools substantially increases the difficulty of investigative tasks for groups such as ITWG and Peak Performance. With the support and active instigation of Steve Baranyk, ITWG's General Government Subcommittee Chairman, our inquiries have lead to consensus between the State Budget Agency, the Auditor's office and Sean Fahey of Peak Performance, to pursue the use of UNSPSC codes as a common accounting and reporting system.

Organizational and structural barriers to effective and efficient IT use – Many lines of inquiry taken by ITWG investigators with respect to “common sense” application of information technology or IT deployment architectures led to dead-ends or organizational impediments which frustrated attempts to resolve obvious inefficiencies. In some cases, this was due to the independence exercised by separately elected officials. However, in numerous cases, the dilemmas with which we were presented were due to complete agency autonomy to pursue IT solutions or the state's agency-specific budget process. The distributed computing model to which this leads is not a problem in and of itself but it presents numerous challenges to promoting statewide solutions to common problems shared by many agencies. For example, many agencies operate their own email systems and there are as many as 11 managed data centers within the executive/administrative branch. Although some instances are created by federally funded programs, states such as Michigan have devised ways to appropriately account for federal programs to allow technology sharing with groups outside the federal programs.

Lack of organizational incentives, budgetary systems & procurement processes to support statewide initiatives (a.k.a. Nearsighted, agency-specific view of IT needs and solutions) – At several junctures, ITWG ran into systemic roadblocks which precluded the Working Group from pursuing broad recommendations affecting all agencies and state programs. The budget process discourages cross-agency cooperation and encourages each agency to “do its own thing” creating redundant capabilities and a pattern of resistance to “doing the right thing for citizens”. There is no statewide IT budget to monitor and manage the use of information technology with an appropriate state perspective. These business governance and management issues must be addressed to realize greater IT effectiveness and efficiency.

Need for top-level leadership to drive consistent, pro-active application of information technology – ITWG perceived a general lack of strategic vision for the use of IT as a catalyst for better government. Without vision, direction and sponsorship from the top of state government and buy-in from key state agency executives, key initiatives will falter or fail and IT strategy will accrue from a patchwork of agency-specific plans resulting in redundant implementations or solutions which never realize their full potential. Though there are many instances of visionary use of IT such as the award-winning accessIndiana web site and innovative uses of IT at the Department of Revenue, these cases represent isolated examples of what could be accomplished

statewide with broader vision and top-level leadership. This issue is arguably the primary reason for the limited success of Peoplesoft implementations throughout the state and, ultimately, allowed pockets of resistance to Peoplesoft to form. Once again, this is not solely the responsibility of the executive/administrative branch. While this issue frustrated ITWG attempts to identify statewide, cross-agency efficiencies, our primary concern was how the lack of top executive sponsorship will severely limit the future success of major initiatives and the adoption of ITWG recommendations.

5. Executive Summary

The Working Group has identified a wide variety of potential actions that would improve both the “back office” use of technology by government agencies to support their internal operations, and the “customer facing” use of technology to better deliver services to the citizens of Indiana.

These are not mutually exclusive categories – improved efficiency in the back office use of IT generally results in an efficiency gain in a department’s operations or service – but the Working Group believes it is important to look at IT from both perspectives – “back office” and “customer facing”. Indeed, it is also important to note that the most important issues to be dealt with are not inherent in the technology, but rather are fundamental challenges of leadership, turf, budget, and internal politics.

The full report identifies a variety of observations and recommendations, but several overarching themes emerged that collectively point to the greatest opportunities for modifying the management and use of IT to improve the efficiency of Indiana State government. Note that the use of the term “Administrative Branch” is intended to represent both agencies whose head is appointed by the governor (normally referred to as the Executive Branch) and those headed by separately elected officials.

Recommendation 1: Track IT expenditures centrally and across all agencies via a common account structure.

Indiana government as a whole does not have the ability to even approximately identify and track spending on information technology. The Working Group was unable to acquire consolidated data on IT spend that anyone felt was either accurate or had any degree of usefulness with regard to management decision-making. The old adage – if you cannot measure it, you cannot manage it – applies. Without good information, you cannot make good and timely decisions. The Indiana chart of accounts was designed for budgetary purposes, not to provide functional business management information to support effective decision making. Every department and agency has developed various workarounds to help them make better IT decisions, but they are not consistent and cannot be aggregated.

We strongly support efforts underway to update the Indiana Chart of Accounts in a form consistent with UNSPSC. We would go further to argue that the State should implement a management information system building on an updated Chart of Accounts that provides the kind and granularity of information within and across agencies that is required for good decision-making. The need for good government-wide information on IT spend is so critical that even if an overall revision of the state chart of accounts is delayed, a state government-wide common data collection and reporting system for IT needs to be implemented as soon as practical.

Recommendation 2: The State must have a statewide, cross-agency view of information technology (a so-called enterprise view in which State Government is the Enterprise)

Information technology has become a critical infrastructure for government operations and the delivery of government services. Just like roads, water, sewers, and etc., IT needs to be viewed as an integrated system with a wide variety of interconnected components that must support the overall system. Some parts of such a system need central ownership and control, others must be managed locally. Perhaps one of the most important objectives for developing an enterprise-wide view of IT is to provide the information necessary to determine the most efficient and effective mix of centralized and distributed IT ownership, management and control.

At present, many initiatives that clearly should be driven at a state level are fragmented, run separately within agencies, or only across a few agencies. Where significant success has been achieved, e.g., moving towards a common email system, the piecemeal approach has undoubtedly cost more and been more complex than should have been the case.

Over the last several years state government has taken great strides in developing such a cross-agency vision – primarily across the Administrative branch of government. It has been greatly handicapped by poor management data (Recommendation 1), and by a management and budget structure that impedes collaboration. Moreover, there are institutional and structural barriers in government that must be dealt with differently than in the corporate world.

The separation of powers ensures that the administrative, legislative, and judicial branches of government will be managed separately. Here an enterprise view cannot be imposed, but must be induced through collaboration and collective action at the highest levels.

Even within the administrative branch, there are strong barriers to developing an enterprise view between the administrative agencies with separately elected heads and the rest of the agencies. Here, we believe that the case for developing an enterprise view is so compelling that the governor and the legislature should take whatever actions are necessary to move to such a system. There is strong precedent for such action in areas of compelling importance such as in HR and procurement.

We strongly recommend not only that all administrative agencies be required (and legislative and judicial branches strongly encouraged) to participate in developing a statewide, cross-agency view of IT (most now participate in some fashion), but that once developed all must move towards compliance with the vision developed regarding initiatives that are architecturally significant (clustered generally around such issues as technology infrastructure, data standards and the application development framework).

Recommendation 3: Undertake enterprise-wide, cross-agency projects for which there is clear and compelling financial benefit with funded mandates.

In all organizations, but especially government agencies, budgets drive authority and decision-making. Once it has been determined that certain cross-agency initiatives are of high priority and offer high return based on careful cost-benefit analysis, these initiatives must be required across agencies and funded centrally. Huge inefficiencies and costs result from fragmented and partial implementations. The most striking victim of such waste is the PeopleSoft implementation. Due to its importance, a separate discussion and recommendation regarding PeopleSoft is provided below.

Several alternatives are discussed in the body of the report, but mandated cross-agency initiatives require a centralized funding strategy.

Recommendation 4: Provide stable funding for enterprise-wide initiatives.

State government runs on a two-year budget cycle and an election cycle that can dramatically impact programs and budgets. However, since enterprise-wide initiatives are generally multi-year initiatives, budget planning and strategy needs to be based on the life of the initiative across agencies. Budget preparation and planning should be focused on the efficiency and effectiveness of proposed initiatives over the lifespan of the initiatives not the budget cycle. This then permits understanding the consequences of funding instability. Adoption of Recommendations 1 – 3, will greatly facilitate the provision of more stable funding. Good data leads to better enterprise planning, which if funded cross-agency, permits more effective multiyear, multi-agency investment planning. It also permits presentation of budget requests in a clear outcome- based, mission-oriented fashion both within the administration and to the legislature.

Recommendation 5: Provide incentives for agency executives to seek efficient cross-agency outcomes and behavior.

Many information technology initiatives fail or run over budget because they are targeted on solving an organizational conflict or are designed to overcome conflicts in business rules without addressing the fundamental conflicts at a policy level prior to launch. Information technology decision-making structures and processes must have the authority to identify and manage these non-technical process and governance issues across agencies.

The Working Group strongly recommends that the State implement a technology management structure that has a wide breath of influence over the information technology aspects of strategic business planning across agencies combined with the ability to ensure a depth of support for and from the agencies. Among the various approaches to such structures, we recommend that the state

establish a single executive (state CIO/COO) with the authority to identify and own architecturally significant information technology initiatives and control funding, procurement and program management for those initiatives. This executive should own or control a statewide IT budget, be accountable for its management and report directly to the governor.

In order to ensure mission alignment and coordinated decision-making, the IT organization under this executive should operate within a federated governance structure, organized around the business domains of state government (currently eight are identified in the existing informal advisory structure). This proposal would build on and formalize the existing advisory structure. This new IT organization should operate the state's infrastructure, govern significant IT investments, manage statewide IT procurement, and provide guidance and oversight on any IT projects touching capabilities of business processes that should be shared across agencies. Agency information officers should have the responsibility to internally manage any IT projects that impact processes or capabilities unique to their agency. For any project over a certain spend level, however, the business case would have to be approved by the statewide IT organization.

Recommendation 6: Immediately transition management and oversight of the state's current PeopleSoft implementation to the Governor's office and apply the principles embedded in Recommendations 1 – 5.

The current PeopleSoft implementation is plagued with all of the problems which have led to the above recommendations. The logic, planning and business case for adopting PeopleSoft was compelling, but the fragmented, piecemeal rollout has resulted in huge turmoil, excess spending, and serious agency mandated limitations that significantly reduce the value to the state from the adoption of such a powerful management tool. Good people have been assigned, but they have not had the authority or the high level sponsorship required to force a cross-agency process or cross-agency funding. In addition, Indiana Peoplesoft implementations have suffered from woefully inadequate training and change enablement.

Even as the full recommendations of this group are reviewed, we strongly believe that major benefits will be achieved by imposing control of the PeopleSoft implementation into a program management office reporting to the Governor's office and putting the PeopleSoft adoption back on the path envisioned in the initial plans.

In summary, the above recommendations represent broad, strategic organizational changes which we believe will establish a foundation for additional tactical advantages and efficiency improvements. The following three tables summarize several cost savings opportunities which are discussed in detail in section 6. Findings and Recommendations (see section 6 for a description of opportunity attributes Risk, Benefit and Investment):

Indiana Cost Savings Opportunity Matrix

Technology Governance Category

Opportunity	Risk	Benefit	Investment
Centralize desktop application management	Low	High	High
Centralize portal management	Moderate	High	Moderate
Centralize e-mail	Moderate	High	Moderate
Centralize application development	Moderate	High	Moderate
Centralize financial management	High	High	High
Centralize security/virus access software	Low	Moderate	Moderate

Notes:

- Opportunities are prioritized by those with the highest benefit relative to risk and investment
- The risk rating aggregates an assessment of time, technical risk, and organizational risk
- This matrix is adapted from a Gartner analysis

Indiana Cost Savings Opportunity Matrix

Technology Management Category

Opportunity	Risk	Benefit	Investment
Create Project Management Office	Low	High	Moderate
Help Desk Consolidation	Moderate	High	Moderate
Enable Shared Risk/Reward contracts	Moderate	High	Low
Consolidate IT procurement	Moderate	High	Low
Create a shared-services environment	Low	High	High
Renegotiate Network Rates	Low	Moderate	Low
Renegotiate Contractor Labor Rates	Low	Moderate	Low
Telecommunications line Audits	Low	Moderate	Low
Discontinue buying proprietary hardware	Low	Moderate	Moderate
Consolidate vendor contracts	Moderate	Moderate	Low
Defer purchases of desktop products	Low	Low	Low
Cell phone usage	Low	Low	Low
Pay for IT investments with bonds	Low	Low	Low
Break-up large projects and defer pieces	Moderate	Low	Low

Notes:

- Opportunities are prioritized by those with the highest benefit relative to risk and investment
- The risk rating aggregates an assessment of time, technical risk, and organizational risk
- This matrix is adapted from a Gartner analysis

Indiana Cost Savings Opportunity Matrix

Technology Architecture Category

Opportunity	Risk	Benefit	Investment
Convert networks to VPN	Moderate	High	High
Server Consolidation (Physical)	Moderate	High	High
Create an Enterprise Architecture	High	High	High
Consolidate Mainframes	High	High	High
Create web templates	Low	Moderate	Low
Move applications to the web	Moderate	Moderate	Moderate
Server Consolidation (Capacity)	Moderate	Low	Low

Notes:

- Opportunities are prioritized by those with the highest benefit relative to risk and investment
- The risk rating aggregates an assessment of time, technical risk, and organizational risk
- This matrix is adapted from a Gartner analysis

6. Findings and Recommendations

The work which lead to the Working Group's recommendations, is based on the analysis of input solicited from the agencies themselves as well as the Indiana Technology Oversight Commission (ITOC), Division of Information Technology (DoIT), Indiana Department of Administration (DOA), accessIndiana, Intelenet, State Personnel Department (SPD), and Indiana Higher Education Telecommunication System (IHETS). In addition, ITWG talked to key state vendors and drew upon the thought leadership of public sector and IT industry analysts. Findings and recommendations which resulted from discussions with these sources are summarized below.

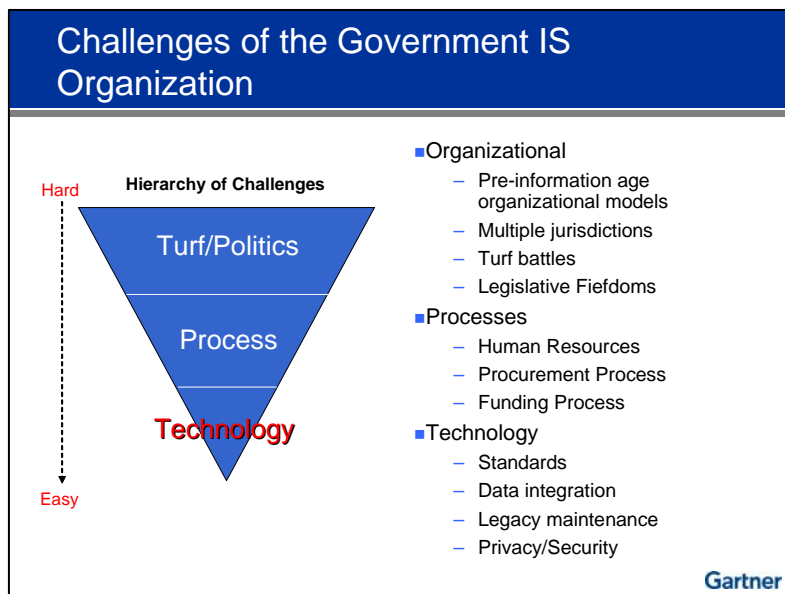
6.1 Supporting Viewpoints from Industry Analysts

After concluding initial investigations, interviews and analyses, the Working Group consulted with Gartner Inc., a leading provider of research and analysis on the global IT industry, to learn best practices in the use of IT within state government, validate our findings in Indiana and provide supporting data for ITWG's findings report. The Working Group briefed Gartner on areas of interest and prepared a set of questions to allow Gartner analysts to effectively tailor meetings with ITWG to focus on topics of greatest concern and benefit to the citizens of Indiana. In response to the questions, Gartner prepared a presentation and supplied us with useful analytical frameworks and research to enlighten our Indiana investigation, corroborate certain "universal" findings and augment the credence of our conclusions. The following broad observation from Managing Vice President John Kost was consistent with the Working Group's findings for the State of Indiana:

"...When viewed through the prism of a technologist, many of the more serious technology challenges in government appear to be technical. In fact, the technology is the least of our problems . . . In facing the challenges that confront government, it is often the case that the most difficult issues are organizational: turf, internal politics, my sandbox versus yours, relationships across agencies and across jurisdictions, particularly in a political environment. Many IS projects fail because they are required to build a technology solution for an organizational conflict or to overcome conflicts in business rules that should be addressed at the policy level."

- John Kost, Gartner, May 2004

This adjacent diagram which accompanied Gartner's presentation underscores the fact that to achieve meaningful improvements in the State of Indiana's technology operations, state government leadership must take a much broader perspective than focusing on technology alone. Technology is simply a tool to support the processes of an organization, and those processes are defined and driven by the organization's mission and leadership.



6.2 Presentation of Findings

In this section of the report, we present the Working Group's findings in three distinct classifications – Technology Governance, Technology Management, and Technology Architecture. The flow of discussion within each category begins with some high level goals the Working Group believes the state should pursue, describes observations which resulted from various constituent interviews, and concludes with recommendations to achieve the stated goals. Brief elaboration on each category will add clarity and understanding to our taxonomy.

Technology Governance involves the leadership structure, reach, and authority for IT decision makers in Indiana state government. It describes the organization and application of IT leadership to best achieve strategic technology goals.

Technology Management addresses day-to-day execution of business processes that support the evaluation, selection, and application of technology initiatives.

Finally, Technology Architecture describes the logical organization of customer-facing and back office business processes in relation to the technology applications that support those processes. It further addresses rules and structures for using and organizing data underlying applications as well as physical technology infrastructure and standards which support them.

Please note that this Working Group did not have the time and resources to complete a thorough analysis of the state's existing technology operations and develop specific, business-justified, tactical recommendations. Rather, we looked for high level structural inefficiencies and risks in

light of current trends and best practices to suggest an overall strategic direction and provide some actionable next steps.

As stated earlier in this report, one of the first logical lines of inquiry in an efficiency study is to probe how much the state spends on IT and for what it spend the money. Although we faced numerous challenges in eliciting these data during our investigation, we were aided by Gartner when they presented to the Working Group. Gartner presented a Cost Savings Opportunities chart (see Appendix 8.7) summarizing cost saving opportunities in state government which closely aligned with our findings. We have enhanced the Gartner chart and tailored it to illustrate opportunities for improvement in Indiana and prioritization for addressing them.

Gartner organized the chart by time-to-implement and benefit to indicate a sense of the highest value initiatives a state might pursue to achieve benefit in the shortest time. The Working Group used this chart as a basis for some additional analysis. We assigned values to risk and investment as well as time and benefit, and aligned these opportunities with the three key classifications of Technology Governance, Technology Management, and Technology Architecture. We then ordered the items according to the highest value opportunities with the lowest combination of time, risk, and investment. The results are depicted in tables accompanying each section of the three classifications around which our findings are organized.

6.3 IT Governance and The State of Virginia

Before presenting our findings for Indiana, the reader can get valuable insights from a report on the IT transformation initiative in the State of Virginia. The report was written by Merete Hvalshagen, a Ph.D. student at Indiana University, after interviewing Virginia officials as part of her work with the IT Working Group. The issues Merete addresses provide a real-world overview of priorities and challenges related to statewide IT improvement. (Ms. Hvalshagen's report, "Transforming the IT Organization for the State of Virginia", is provided in its entirety in Appendix 8.10 of this document.)

Under a severe budget crisis and with a new "tech-savvy" governor at the helm in 2002-2003, the State of Virginia set out to become "a leader in technology in the global economic marketplace" to drive savings with increased operational efficiencies. Since initiation of its IT transformation program, Virginia has carried out the following projects:

- Consolidation of infrastructure and IT personnel connected to infrastructure
- Central coordination and revamping of web-based services to the public
- Consolidation of email and voice telecommunications
- Central governance and control of technology procurement and projects
- Use of technology to achieve improvement and cost savings in IT procurement

Virginia's efforts have contributed over the past year to receiving a *NASCIO Recognition Award* for outstanding achievement in IT and having its portal named as best in the nation by *The Center for Digital Government*, which also bumped Virginia's rank from 28th to 6th place among states in their overall use of technology to deliver services. (NASCIO is the National Association of State CIOs.)

Lessons learned from Virginia's efforts which are relevant to our recommendations for Indiana include:

- *Start with a clear vision and driver for change.* Virginia's budget crisis underscored the need for increased efficiency, which required drastic changes to "business as usual".
- *Sponsor and advocate change from the top.* In Virginia, Governor Warner has kept IT reform on the top of his agenda.
- *Appoint an independent IT Investment Review board with members from the private sector to look at significant IT spending.* This serves to separate governance issues from political agendas and drive more of a bottom-line orientation.
- *Give special attention to IT governance issues unique to state government.* In Virginia, they ensured that the state CIO's term overlapped the governor's, and addressed key issues regarding federal funding of programs early on.
- *Understand that statewide IT transformation is at least as complex as a major corporate merger.* The Virginia initiative works closely with all stakeholders to address concerns and challenges, and provides frequent communication on the effort. Memoranda of Understanding were also crafted and signed with each agency, and workshops were organized to ease the transitions.

The recommendations toward centralization that guided Virginia's efforts included a focus on consolidation of critical IT areas, such as: statewide contracts for IT purchases, consolidation of administrative information systems, combination of data centers, consolidation of business processes, and use of web-based technology to organize customer service activities. There is a high degree of correspondence between actions undertaken by Virginia and several items in the Gartner Cost Savings Opportunities chart.

6.4 State of Indiana Findings and Recommendations

The following discussion covers the Working Group's suggested goals, current state observations, and recommendations for IT across the State of Indiana with regard to Technology Governance, Technology Management, and Technology Architecture.

6.4.1 Category 1: Technology Governance

Gartner has stated in a strategic planning assumption that with 80% probability "greater than 50% of public sector CIOs will fail because they are trying to do the wrong job." As indicated earlier, doing the right job in Indiana will require not only technology solutions, but also influence that reaches into the *process and organizational aspects of IT management*. These areas are addressed at the *policy level of state government*, and it is at that level where IT should be clearly and directly represented. Further, the appropriate organizational mechanisms need to be in place to execute the IT agenda.

Below is a table based on Gartner's Cost Savings Opportunities analysis and tailored for findings related to the Technology Governance category. Following that is our discussion of goals, observations, and recommendations for Technology Governance in Indiana.

Indiana Cost Savings Opportunity Matrix

Technology Governance Category

Opportunity	Risk	Benefit	Investment
Centralize desktop application management	Low	High	High
Centralize portal management	Moderate	High	Moderate
Centralize e-mail	Moderate	High	Moderate
Centralize application development	Moderate	High	Moderate
Centralize financial management	High	High	High
Centralize security/virus access software	Low	Moderate	Moderate

Notes:

- Opportunities are prioritized by those with the highest benefit relative to risk and investment
- The risk rating aggregates an assessment of time, technical risk, and organizational risk
- This matrix is adapted from a Gartner analysis

Goals

- The State CIO must have the authority to identify and own architecturally significant IT initiatives and control funding and procurement for those initiatives. This person should report to the governor, oversee a statewide IT organization and budget, and be accountable for all aspects of statewide IT management.
- The IT organization under the state CIO should operate within a federated governance structure with Information Officer (IO) representation from each agency (see further discussion

below regarding business domains). This organization should operate the state's infrastructure, govern significant IT investments, manage statewide IT procurement, and provide guidance and oversight on any IT projects touching capabilities or business processes that should be shared across agencies.

[It should be noted that attempts to implement the federated governance structure in Indiana will be controversial and face significant resistance. ITWG believes debate on the issue to be healthy for the state. Appendix 8.9 includes a dissenting view to the federated governance and central IT structures.]

- An agency's Information Officer should have the option to internally manage any IT projects that impact processes or capabilities unique to their agency *but only those unique to their agency*. However, for any project whose cost exceeds certain levels, agency IOs should provide a business case to the statewide IT organization to justify agency ownership and seek approval. Authority should vest in the state CIO.

In formulating these goals, the Working Group relied on its own experience and research as well as the Virginia analysis cited earlier. In addition, some interviewees alerted the Working Group to instances of successful governance in other states:

- The Georgia Technology Authority's purpose is to set the direction for the state's use of technology and make government transactions and information accessible anywhere, any time. GTA manages the state's computer and telecom services and promotes the cost-effective use of technology in state and local government. The GTA has consolidated the IT budget and approval processes.
- The Michigan Department of Information Technology (DIT) provides technical and management support services to all state of Michigan agencies. The areas within DIT providing support services are Agency Services and Infrastructure Services. These services assist agencies in providing state-of-the-art IT products to the public. DIT provides enterprise application services, contracts and procurement services, desktop services, infrastructure services, and project management support services to the agencies. DIT also controls all IT spend in the state of Michigan to enforce its role as a technology gatekeeper and standards-setter.

As several key vendors pointed out, the state needs a true enterprise approach to technology where architecturally significant efforts are handled centrally, IT decisions are linked to business goals, and there is a single point of responsibility and accountability for IT spend and results. Gartner elaborates on this point using e-government as an example:

"Tactical Guideline: Many government jurisdictions are simply too large to design and build a comprehensive e-government strategy for the entire enterprise. Instead, the focus should be on domains in which there is a very large shared constituency. ... Since verticals/domains share a common constituency and are more likely to share funding sources, data models and applications, decision makers at all levels within a vertical should focus architecture resources within these domains, but across tiers of government"

-Gartner 2004

This implies a governance tier in the federated structure between the statewide and agency levels, representing groups of agencies with a common or related mission. For example, Health & Human Services is a business domain in which several agencies might share IT resources among themselves but not across the entire state. There is a statewide enterprise architecture initiative currently underway within the state that has identified seven such business domains (http://www.in.gov/itoc/html_site/architecture/tlc_structure.html). These could provide a common-sense grouping of agencies to consolidate representation of agency IT interests. The statewide IT organization should consider and accommodate this in its approach.

Observations

- DOIT has a vision, but without true authority it is not clearly perceived across agencies. As a result, initiatives that should clearly be driven at a state level are often times fragmented and run separately within agencies or across only a few agencies.
- Lacking authority, statewide IT finds itself reacting to architecturally significant initiatives sponsored by agencies and bargaining with agency sponsors on issues of strategy, standards and scalability. It is difficult to define a stable statewide vision and establish enterprise standards in such an environment.
- IT costs are rarely tracked thoroughly even within agencies (with some exceptions), much less at a statewide level.
- Short of executive mandates, nothing effectively provides an incentive for agencies to blend funds, share IT resources, or otherwise participate in enterprise initiatives which might lower costs, better serve citizens or more effectively deploy technology. Even when mandates exist or agencies would like to participate, the “siloe” budgeting and project funding processes create significant impediments.

Recommendations

- Elevate the state CIO to report directly to the governor.
- Stagger the state CIO’s term to overlap the governor’s. This helps insulate IT decision making from the political process and has proven effective in Virginia.
- Establish a statewide IT organization with a federated governance structure utilizing already-identified business domains and their respective agencies to provide appropriate oversight of agency IT activities.
- Ensure that the statewide IT organization owns operation of the state IT infrastructure, governs significant statewide IT investments, manages statewide IT procurement, and provides oversight for significant IT initiatives across the agencies.
- Require that the executive and legislative branches are represented in oversight of the state IT organization, and that the organization itself includes IO representation from each agency as well as independent (preferably commercial sector) review of IT investment decisions.

The representation of stakeholders, particularly agency IOs, in the federated statewide governance structure is critical to its success. Gartner states that:

“Another key aspect of governance is the relationship between the enterprise and the operating programs or agencies within the enterprise. There must be a continuous feedback loop, whether formal or informal, to enable regular communications between the central IS organization and operating IS organizations. This is essential for infrastructure planning, project management and effective procurement procedures. But not only must the enterprise CIO seek input, operating agencies must also participate in the process openly and candidly to ensure that the planning process works.”
- Gartner 2004

Key vendors echoed other Working Group conclusions during interviews. Vendors believe that, to succeed, Indiana needs to “implement state technology management structures with both strong breadth of influence and depth of support for the agencies.” They also recommend that the state “audit existing technologies to see how decisions affect related business costs,” and “establish a process to investigate new technologies.” The structure and organization we recommend should address these issues.

*We are clearly recommending a significant increase in authority for the state CIO and statewide IT organization. However, it should be **strongly** noted here that significant preparation must go into restructuring, reorganizing, and re-skilling the state’s existing central IT organizations before this can happen.*

Many agencies cited concerns with the capabilities, service levels, and lack of customer focus characteristic of today’s DOIT. There exists a general lack of confidence in DOIT which will represent a significant issue to overcome when undertaking greater IT centralization. The consensus of most agencies is that DOIT is under funded and ill-prepared to undertake projects for which they are chartered. Part of that has to do with the historic lack of authority which has forced this organization to be “all things to all agencies.” Part is a lack of budgetary authority aligned with the appropriate accountability and part is likely due to typical institutional rivalries between corporate and business unit-level IT organizations. Regardless, it is imperative that thorough organizational planning and assessment activities precede any transition of IT implementation or support activities to a central authority. The benefits of success in this area are enormous, but come only after the necessary investment of executive-level sponsorship, time, and resources to build the right support capabilities.

6.4.2 Category 2: Technology Management

Gartner has concluded with 90% probability that “through 2007, public sector CIOs who fail to understand the organizational and process issues that will impact a large IT project before undertaking the project will see the project fail 80% of the time.” The best possible governance model cannot mitigate this risk without appropriate mechanisms in place to manage the underlying

enterprise IT processes. These processes include the human resource, procurement, funding and program management aspects of technology oversight. Gartner further states:

"...key command and control processes of government have a direct impact on success of the IS organization. If the IS organization is unable to procure solutions that are appropriate or, worse yet, is forced to adhere to processes that will lead to the wrong outcome, then the IS organization is less likely to succeed. The same is true for HR processes that result in the inability of the organization to maintain the correct skills sets. Funding processes that prevent collaboration are yet another significant challenge to success."

- Gartner, 2004

Changes to the State of Indiana's back office processes for managing IT will be critical to improve operational efficiency and better serve internal and external constituents of state IT services.

Below is a table based on Gartner's Cost Savings Opportunities analysis and tailored for findings related to the Technology Management category. Following that is our discussion of goals, observations, and recommendations for Technology Management in Indiana.

Indiana Cost Savings Opportunity Matrix

Technology Management Category

Opportunity	Risk	Benefit	Investment
Create Project Management Office	Low	High	Moderate
Help Desk Consolidation	Moderate	High	Moderate
Enable Shared Risk/Reward contracts	Moderate	High	Low
Consolidate IT procurement	Moderate	High	Low
Create a shared-services environment	Low	High	High
Renegotiate Network Rates	Low	Moderate	Low
Renegotiate Contractor Labor Rates	Low	Moderate	Low
Telecommunications line Audits	Low	Moderate	Low
Discontinue buying proprietary hardware	Low	Moderate	Moderate
Consolidate vendor contracts	Moderate	Moderate	Low
Defer purchases of desktop products	Low	Low	Low
Cell phone usage	Low	Low	Low
Pay for IT investments with bonds	Low	Low	Low
Break-up large projects and defer pieces	Moderate	Low	Low

Notes:

- Opportunities are prioritized by those with the highest benefit relative to risk and investment
- The risk rating aggregates an assessment of time, technical risk, and organizational risk
- This matrix is adapted from a Gartner analysis

Goals

- The financial, procurement, and human resource business processes that support IT at an enterprise level should be owned at an enterprise level by the state CIO. The CIO should be

responsible for a significant IT budget and be accountable for the success of enterprise-wide IT initiatives.

- The state CIO must have a process in place with the appropriate authority to determine which IT initiatives are architecturally significant and support strategic business objectives. (They should therefore be managed at an enterprise level.)
- To provide effective oversight of these projects, the statewide IT organization must develop and retain a core competency in program and project management, oriented toward the sharing of IT resources and capabilities across the state as well as excellence in customer service to the agencies.
- To baseline and continually measure the costs of IT, the statewide IT organization will need a robust, modern chart of accounts in place to capture spending on technology initiatives across agencies. Agencies should also use the same tools and processes to capture non-enterprise IT spending.

The importance of empowering the state CIO with the authority to own not only enterprise-wide IT initiatives but also the critical processes to implement those initiatives lies in the value of having a key executive with a truly statewide enterprise perspective. State-level strategic planning is necessary for Indiana to achieve IT efficiencies, but as Gartner states:

"...a strategic plan is a relatively meaningless exercise if it isn't derivative of a business strategic planning process for the whole enterprise — something most government jurisdictions lack. Further, even after an attempt at strategic planning, even fewer jurisdictions link this process to the formal budgeting process. Truly effective governance depends on a strong linkage between strategy and budgeting. This is especially important when large, capital-intensive, multi-program projects are being considered."

- Gartner 2004

A well-designed strategic planning process starts with a business driver (e.g. "implement a citizen-centered service delivery model for human services"; "consolidate all enterprise HR and financial processes using PeopleSoft"; etc.) and looks across the complete universe of business factors and IT resources available to reach that goal. This process must include authority over financial, procurement, human resource, and program management factors of any IT initiative.

The savings potential associated with the procurement processes alone is underscored by Gartner's industry research, which states with 80% certainty that, "Through 2010, without significant procurement reform, complex government IT systems will cost at least 20 percent too much and take 33 percent too long from idea to completion."

Observations

- Projects with clear enterprise-wide implications, such as the PeopleSoft HR and Financials implementation, lack the executive sponsorship, buy-in, and central funding required to make them minimally successful. (The PeopleSoft effort is addressed in section 7 of this report.)

- Long budgeting and procurement cycles impede centralized planning and management at the outset of technology investment decisions. These cycles are so long-tailed that they significantly delay the implementation of improvements.
- Agencies know the procurement process is difficult, so they bundle purchases as much as possible. The practice of buying more once every few years instead of buying often as needs arise foregoes savings from the declining cost of technology and delays business benefits.
- Most RFPs do not have clear business or technical requirements identified. This causes vendors to make a difficult choice between guessing and not bidding at all.
- Vendors who help identify business and technical requirements for a potential need may be prohibited from bidding on the solution. This impedes partnering and innovation from vendors knowledgeable of best practices. (DOA rules surrounding this have been unclear. Improvements have been made as a result of the Opportunity Indiana initiative but were not completed in time for the Working Group to include an analysis of the changes.)
- The procurement process is painfully slow, and no one understands it clearly. Purchase orders even for the QPA process can take a long time. Once selected, it may take 3 – 6 months for a vendor to be contracted and fully engaged.
- RFP questions are typically answered all at once rather than as they come in. This creates problems for vendors who are deciding whether to bid or who are waiting to develop details of their solution.
- Preferred vendor lists are too long and save little time for agencies (>50 vendors on BPA)
- Too few opportunities go through the BPA. The BPA is a preferred track since it takes only 3-6 weeks. The 4% BPA fee from DOIT is an issue with some agencies.
- Performance Bonds are too high and often preclude small and medium-sized firms from bidding on opportunities. Regardless of vendor size and ability to post bonds, the cost of bonding is ultimately passed along to the state. The procurement process as originally conceived protects against fraud but doesn't favor selecting the best solution, is costly for the state and vendors and is better suited to large, global system integrators (perceived to be the "safe choice").

Recommendations

- The statewide IT organization should bolster and continue its efforts to build a Program Management Office. In conjunction with the other recommendations in this report, a PMO could help the state realize significant IT efficiencies across projects and agencies. This would provide focus and a forum to educate state agencies on best practices in large-scale IT projects (up-front requirements definition and planning, project management, proven methodologies, training, change management) which could translate into \$5-10 million annually in savings through reduced project overruns. To be effective this recommendation must secure the governor's sponsorship and track compliance.
- A PMO would also help standardize methodologies across the enterprise (CMMI, Program/Project Management, SDLC). Georgia, Michigan and Virginia require PMPs (a Project

Management Professional designation from the Project Management Institute) for state employees *and* contractors.

- To the extent possible, the state should pursue help desk consolidation for IT users. It may not be possible to centralize help desks for all applications since some are very agency-specific, but as progress is made in standardizing applications and standards around core business processes, help desk consolidation could become an additional significant source of benefit.
- Both a central PMO and help desk environment are key enablers for pursuing shared services. A shared service is a centralized “generic” capability that can be used by multiple customers (agencies) while achieving large cost benefits from economies of scope and scale.
- Loosen QPA parameters. For smaller QPA needs (<160 hours) the agency wouldn’t need to send out notice to all vendors but rather could choose a vendor from the preferred list and complete the necessary paperwork. This would be a quicker way to meet an agency’s tactical needs.
- Vendors should have flexibility to submit a letter of credit instead of a performance bond. The state should understand the impact of bonding requirements and utilize reasonable industry norms for bonding amounts. The state should consider replacing the performance bond program with a managed risk pool to which bidding vendors contribute.
- Complete ROI and cost/benefit analyses (including submission and approval processes) on all technology projects
- Pursue more value-based procurements (i.e. not just based on the cost to the organization but the value to be received by the organization)

Gartner provides a number of perspectives on technology management specific to the procurement process. As a tactical guideline, Gartner advises that not all procurements have the same degree of risk; therefore, different procurement approaches that reflect the appropriate level of risk mitigation should be used. The highest level of effort should be reserved for high-risk projects and basic approaches used for low-risk, low-cost, or commodity-type purchases. Also, procurement processes across the risk spectrum need to assume some level of competence of the buyer.

“Public-sector procurement processes must ensure project success by facilitating a good outcome, rather than only trying to prevent bad processes. More attention must be paid at the project’s start to all of the risks — political, contractual and programmatic — that are associated with procurement, especially those that will have a material effect on the project’s outcome.”

- Gartner 2004

Gartner’s views on procurement in general are summarized below:

- Government procurement processes can be effective enablers, or major barriers, to successful IT deployment. Government should bring together the CEO (or appropriate cabinet agency head), procurement manager and CIO to determine what policy objectives its procurement processes are expected to achieve. Once these objectives are clarified, more-specific procedures should be developed to include performance metrics for procurement managers.

- After, and only after, standards and contracting tools are in place, the lowest level users in government can and should be entrusted with basic procurement decisions. If they prove untrustworthy, it should be addressed as an HR issue.
- Procurement agencies should create a wide array of contracting tools to minimize effort and resources. Master contracts for commodities and basic services should be available for users to minimize process time requirements when something is needed. Credit or procurement cards are an excellent tool for reducing the process effort and costs associated with the most basic commodities and travel expenditures.

6.4.3 Category 3: Technology Architecture

A well-designed technology architecture would enable the State of Indiana to significantly reduce the costs of IT procurement, development, implementation, maintenance, and support. Such an architecture starts with identification of key business processes and functions across the state. As suggested in the federated governance structure discussed under Technology Governance, these might be identified at an agency level, but might drive more value if established across similar agencies for an entire business domain (e.g. Health and Human Services to include FSSA, DWD, ISDH, etc.), or even for the entire state. The challenge in tackling this issue is to find the appropriate distinction between which processes and functions should be shared broadly versus which should remain unique to an agency. Also, the effort must recognize that some processes are “citizen-facing” while others exist to provide internal support.

Shared Processes and Applications: External and Internal

For example, a citizen-facing process that might be shared broadly would be collection of demographic data from citizens and vendors which we will refer to as “intake”. Many agencies, even across business domains, engage in some form of citizen intake as Hoosiers participate in state services. It can be frustrating for someone utilizing multiple services to have to provide the same information over and over again to each service provider. An improvement would be to have one technology solution supporting common elements of “intake” across all agencies, and allow each agency to tailor it to their specific needs. This would drive benefits such as easier and more customer-centric access to services, improved internal data quality, and improved service quality as the providers using such a system could (with permission) get a fuller picture of their customers’ or clients’ needs and interests.

Internal processes that lend themselves to centralized support typically include HR, financial, and accounting functions. The state is already attempting to address these through the PeopleSoft implementation, discussed in detail elsewhere in this report (section 7).

Shared Data, Infrastructure, and Capabilities

It is important to recognize that the technology solutions described above to support intake processes exist in an agency-specific environment of shared data and infrastructure. Many such

technology solutions could also draw from a central pool of capabilities deployed and managed by the state's IT organization (DOIT).

For instance, as indicated in the "intake" example above, sharing citizen information across agencies or business domains would require adoption of a common set of data standards. With common data standards, "John A. Smith" living at "123 Elm Street" represents the same entity regardless of where his records are needed in the system. As it stands today, a single individual participating in multiple state services may not appear consistently across systems (e.g. "John Smith" at "123 Elm St." may have been entered elsewhere). A well designed and managed technology architecture addresses this issue by defining and enforcing data standards across an enterprise.

Of course, all of the state's systems that must communicate among themselves or with other entities do so over a physical network infrastructure. It is here where the benefits of sharing capacity become the most clear. Just as it would be inefficient for each business or homeowner to build their own plumbing or electrical access systems, it is highly inefficient for entities related within the same enterprise to build their own communication infrastructures. All state IT should run on a common shared network, designed to manage the loads and provide the service levels required by each internal customer.

Finally, there are certain technology capabilities that can be deployed more efficiently when centralized versus having each user procure them individually. For instance, the state only needs one agreement, process, and set of tools and rules regarding the use of electronic signatures. The CIO should provide an electronic signature "service" that any state entity could simply "plug into" for processes needing this capability. Another clear example is email, where all state users should be on the same system. We learned there are 38 different email systems within the State of Indiana.

Each of these architectural benefits can be enormous for a sizable enterprise that has not historically taken advantage of such efficiencies. However, an historical lack of architecture can make the costs of implementing it in an enterprise significant as well. Achieving these benefits for all stakeholders of state government would require sponsorship, funding, and change management attention at the highest levels, as described under previous headings in this document.

Gartner underscores these points by stating: "The establishment of enterprise architectures will provide the agility needed to integrate government functions and processes across agencies and tiers of government." Gartner goes on to address some specifics along with key difficulties described above: "Data needs to flow across agency boundaries as well as across tiers of government, but legacy systems and solutions as well as turf issues have made that level of integration difficult, if not impossible."

The recommendations below list some initial steps to take to improve the state's technology architecture.

Below is a table based on Gartner's Cost Savings Opportunities analysis and tailored for findings related to the Technology Architecture category. Following that is our discussion of goals, observations, and recommendations for Technology Architecture in Indiana.

Indiana Cost Savings Opportunity Matrix

Technology Architecture Category

Opportunity	Risk	Benefit	Investment
Convert networks to VPN	Moderate	High	High
Server Consolidation (Physical)	Moderate	High	High
Create an Enterprise Architecture	High	High	High
Consolidate Mainframes	High	High	High
Create web templates	Low	Moderate	Low
Move applications to the web	Moderate	Moderate	Moderate
Server Consolidation (Capacity)	Moderate	Low	Low

Notes:

- Opportunities are prioritized by those with the highest benefit relative to risk and investment
- The risk rating aggregates an assessment of time, technical risk, and organizational risk
- This matrix is adapted from a Gartner analysis

Goals

At the appropriate levels where investments can be leveraged with a positive cost/benefit, state agencies should share a single technology infrastructure, set of data standards, and application development framework. This will allow the state to avoid redundant spending and centralize management of core requirements such as maintenance, security, support, and overall architectural standards.

Underscoring the points that opened this discussion on architecture, some key state vendors have indicated that the state should "move to open technologies for low cost, flexibility, scalability, reliability, and vendor / developer independence" as well as "standardize on core technologies and pursue Enterprise Application Integration (EAI)." Several agencies still operate with proprietary mainframe applications.

Gartner weighs in further on this point as well. Their analyses touch on identification of potentially shared processes, provision of customer self-service, and content management:

- Citizen Service Triage is an important step for each government jurisdiction to perform. Mapping each activity of government to how complex it is and how often it occurs will help identify the ideal approach to meet citizen needs as well as designing an organizational structure compatible with the ability to deliver.
- Government should strive to push as much to self-service as possible, but recognize that many services can not be delivered the ideal way, and that a plan must be included to provide human intervention when needed.

- Strategic Planning Assumption: By 2004, leading-edge enterprises will have formal content management (business processes and integrated technology) in place for Web, inter-enterprise and intra-enterprise environments (0.8 probability).

Observations

All agencies do not utilize the statewide broadband network, and some duplication of network infrastructure appears to be occurring around the state. Regarding hardware and common “utility” services, state agencies as a whole do a poor job of sharing servers, desktops, and help desk support. They do a better but not optimal job of sharing basic office productivity applications. Data standards for the same entities (e.g. clients, vendors, providers,) vary across state systems and even sometimes within agencies, making it difficult to establish, for example, a “single state view” of all services being provided to a family, or of all business transacted with a particular provider of state services.

Where common business processes exist (e.g. finance, HR, citizen record management, claims payment, etc.) there are rarely shared systems across or sometimes even within agencies to support those functions. This can result, for example, in the existence of multiple redundant systems doing “commodity work” such as claims processing. The statewide PeopleSoft HR and Financials implementation attempts to address some of these issues, but falls into the category of an “unfunded mandate”, which impedes many agencies from participating.

With IT assets and spending buried in multiple agency projects and, since the accounting structure cannot produce a list of what we have in place statewide, it is extremely difficult to determine what infrastructure or solutions within the state might be either redundant or scalable for other needs.

Observations from those interviewed by the Working Group include:

- Email for approximately 40 state agencies is centrally managed and supported at DOIT. The rest manage their own email systems. There may be approximately 15-30 FTEs supporting the non-centralized email systems across agencies. Many agency IT managers don’t want to lose control of their systems and don’t trust DOIT. There would be an up-front cost of consolidating these and many state workers would have to reallocate their time and responsibilities.
- There is high territorialism within agencies with respect to data and applications which creates a cultural barrier to sharing that would need to be overcome.

Recommendations

Many recommendations are covered in the opening discussion for this section. Additional vendor recommendations gathered during our interviews include:

- To consolidate email, gain executive support from the governor first to overcome agency resistance and gain funding. Then complete a high level analysis of effort, time, and cost. Someone would also have to develop a detailed cost model to charge back agencies for the centralized service. This effort could reduce labor, hardware, and software costs by \$1 to \$2

million per year while also increasing customer service and support and reducing the risk of security breaches and virus attacks.

- A similar consolidation approach could be taken for other utility-type functions such as help desk, SANs, etc.
- Pursue executive (governor) support to pursue centralized statewide IT initiatives such as enterprise portal, directory services/provisioning, content management, customer relationship management, enterprise application integration, and program/project management. Estimated savings are in the \$10-20 million range annually. A comprehensive change management plan would need to be in place for these initiatives to succeed.
- Fully utilize enterprise applications across agencies where appropriate to support common processes.
- Standardize on open technologies and consider open source software in instances where the risk is low.
- Intel server consolidation could cut the total cost of ownership by 80% for the state.
- Build a shared citizen database for demographic data.

6.4.4 Findings Summary

In summary, the Working Group identified a number of opportunities for improving efficiency in the areas of Technology Governance, Technology Management and Technology Architecture. We believe the above classification and priorities established within the report provide state officials with a good starting point for positive change within state government. Broad, organizational recommendations (Technology Governance) will require careful planning, substantial work and, perhaps, legislative action. Other recommendations may be undertaken through less sweeping operational projects. Though many of the recommendations will require initial investments, the sooner the state can begin implementation the sooner citizens will reap rewards through lower cost operations and greater statewide efficiencies.

7. Peoplesoft

In the latter half of the 1990's, the State of Indiana made a strategic decision to invest in an Enterprise Resource Planning (ERP) software application and after an objective review of market alternatives, the State chose PeopleSoft. The vision was to create a common transaction processing platform across all state agencies for like business processes with the goal of improving consistency, quality and control of business process; increasing productivity, efficiency and effectiveness of state workers; and reducing overall operational and support costs by reducing the number of supported technology platforms. Although the initial vision was laudable and, in our estimation, prudent, as of the date of this report, the overall implementation of the PeopleSoft application has consumed significant public resources in terms of both people and tax dollars while producing less than the anticipated benefits for the citizens of Indiana. (ITWG members must acknowledge that Indiana has invested fewer dollars than many other states which have pursued similar initiatives.)

This result is not uncommon. Many ERP implementations, in both the public and private sectors, consistently fall short of expectations and some have suffered colossal failures. Unfortunately, the prevailing belief across much of state government is that the citizens of Indiana are NOT achieving the benefits originally envisioned. Although through our interviews and discovery process with agency representatives we consistently heard the desire to benefit from the implementation of the capabilities inherent in an ERP system, there are a host of issues preventing that realization.

First and foremost we heard a consistent frustration with the inability of an agency to adequately fund the transition to this new technology within the current budgeting process. With no mechanism within state government to "capitalize" investments in technology, agencies must identify the capital to fund the implementation within their operating budget. At the same time, given the state's economic constraints, there has been continued pressure to reduce expenditures. This climate has produced an environment where many of the agencies view the adoption of PeopleSoft as an unfunded mandate. Although many agencies support the objectives, and indeed desire the capabilities of the ERP system, they simply cannot afford to make the transition. Even within the agencies which have been able to fund the implementation, our committee consistently found the lack of sufficient investment in training and change management activities. The lack of adequate training and preparing agency workers to change the way they execute their responsibilities further limits the state's ability to achieve successful outcomes.

Foremost among the factors missing from Peoplesoft implementations which would have contributed to their success is clear and consistent top-level executive leadership (Governor or Lt. Governor) driving the process from a business perspective.

Supported by several of our recommendations, there should be a mechanism to fund the implementation of PeopleSoft across ALL agencies, including sufficient change management and training initiatives to take advantage of the investment made in the technology platform. However, simply providing the funding mechanism for the implementation of the application across the remaining agencies will not, in and of itself, yield the desired results.

In addition to the inability of an agency to fund their PeopleSoft implementation, there is also a significant level of frustration with the inability to adopt or apply “best practice” business process capabilities inherent in an ERP application. Specifically, it was reported to this committee that the state’s chief financial agencies have not embraced the adoption of the new PeopleSoft application. This fact was cited by several agencies as a barrier to achieving significant efficiencies which were originally envisioned. Additionally, it was presented to this committee, multiple times, that design and implementation decisions have been made which compromise the ability to the state to achieve performance improvement. In some cases, the current business process is simply being replicated in the PeopleSoft application, with no attempt to stream line the process or take advantage of the integrated capability offered within the application. In deed, this approach introduces NEW INEFFECIENCIES into the overall system by making an automated application operate as if it were a paper-based, manual system. In fact, our committee was told that the application has been modified (which in the implementation of a piece of packaged software should be minimized) to eliminate the “enterprise” capabilities – one of the very reasons why an application such as PeopleSoft is typically adopted.

Several factors contribute to this state of implementation. One of the primary factors is the lack of a single point of responsibility enabled with the appropriate authority to cause, or at a minimum encourage, the adoption of best practice business process. Although with the creation of GMIS, an attempt was made to create an entity which would be responsible for the implementation of enterprise applications across state government; its ability to affect positive outcomes has been limited even though there have been outstanding individual contributors leading and/or staffing the organization. It is our belief that the lack of authority over many of the implementation decisions is a significant constraint limiting the organization. Indeed, the very nature of state government is another constraining factor. Separation of powers combined with separately elected officials present significant challenges to the successful implementation of an effective enterprise solution. Success requires commitment and support from key leaders of state government and across all separately elected officials.

In summary, to realize the potential of the PeopleSoft application the state must:

- Fully fund the deployment of the application across all agencies
- Invest in the training and change management activities as part of each implementation
- Vest responsibility and authority for implementation with GMIS and support the organization by ensuring adequate skills and capabilities are available to support agency implementations

- Ensure antiquated process paradigms ARE NOT replicated in the new system. (Take advantage of this opportunity to re-engineer and streamline legacy business processes.)
- Facilitate cross agency, cross branch collaboration initiated by top state government leadership and support

8. Appendices

The following appendices provide supporting data for the ITWG findings report.

8.1 GECGG IT Working Group Members

Name	Affiliation	Phone	E-mail
Steve McNear	Quest Information Systems	317-554-6521	smcnear@questis.com
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Jim Wheeler	Techpoint	317-696-7940	jwheeler@TechPointIN.org
Carol Brown	Indiana University	812-855-2607	cbrown@indiana.edu
Bryan Wiggins	Marketsphere	317- 208-6501	bryan.wiggins@marketsphere.com
Peter Fruehman	Fruehman Group	317-581-8995	pf@fruehmangroup.com
Rebecca Hendricks	Mirror Consulting	317-862-4489	rebecca.hendricks@mirrorconsulting.com
Steve Kaser	Technology Service Corp.	812-323-4057 x 125	skaser@tsc.com
Russ Clark	Number Six	317- 508-0318	rclark@numbersix.com
Rick Nicolini	United Way	317-923-1466	nicolin@uwci.org
Merete Hvalshagen	Indiana University		mhvalsha@indiana.edu
Steve Baranyk	Baranyk and Associates	317-844-1979	sbaranyk@att.net

8.2 State Agency Witness List

Testimony Date	Agency	Representatives	Interview Lead
5/7/04	DNR	S.Fahey, Deputy Commissioner T.Stahl, Director IT	S.McNear
5/7/04	DOR	K.Miller, Commissioner M. Cooksey, Administrator IT Division R.Gabriel, Deputy Administrator IT Division Motor Carrier	S.McNear
5/21/04	INDOT	B.Nichol, Commissioner J.Nugent, Division Chief, Systems Technology	P.Fruehman
5/21/04	DWD	D.Banning, CIO M.Draper, Dpty Comm Economic Dev B.Bedwell, Dpty Comm Field Operations	R.Clark
5/21/04	BMV	M.Deprez, Commissioner M.Moore, CIO	P.Fruehman
5/21/04	IDEM	S.M.Moster, Dpty Comm Environmtl Ops L.Beamish, Director Business Services	R.Clark
6/4/04	DOA	C.Martindale, Commissioner J.Underwood, Dpty Comm, CFO/GMIS J.Welsh, GMIS Technical Team Lead	S.McNear
6/4/04	IPD (HR)	Sue Roberson, Director of State Personnel	S.McNear
6/4/04	Intelenet	G.DePriest, Director, State Network D.Kings, IHETS Executive Director	S.McNear
6/4/04	Access Indiana	C.Irven, General Manager L.Larimer, State CIO	S.McNear
6/11/04	FSSA	T. Guevara, Director of Div of Tech Services S. DeMougin, Director Div. of Family & Children	B.Wiggins
6/11/04	DOH	G.Wilson, M.D., Commissioner J.Hunt, Asst Comm, IS & Policy	S.McNear
6/11/04	ISP	D.Meek, Major ITD	S.McNear

6/11/04	DOC	E.Ridley-Turner, Commissioner B.Hughes, Director IT	S.McNear
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8.3 State Agency Testimony Summary

Agencies' Selected & Abbreviated Interview Notes – 2004

The following are selected comments, ideas or suggestions made by the agencies during their interviews with the commission. The testimonies are not identified by agency due to the commission's desire to maintain confidentiality. Statements may have been reworded for readability and consolidated in the case of similar thoughts. In addition, the comments have been divided into three categories: technology governance, technology management and technology architecture.

Technology Governance

Fund enterprise budget preparation and management
Need statewide database to retrieve public information – takes too long now search multiple databases
Perform benchmarking and set baseline metrics
To the legislature – don't be afraid to fund IT in agencies that manage their IT well; don't throw the large, well-run agencies into the same pool as the smaller ones; legislators are welcome (and maybe should) meet with the agencies to get first hand feedback, as the Government Efficiency Commission has done
Need to implement electronic signatures
Wet signature requirement of State Auditor prevents the efficient use of existing capabilities
Need to adopt of CRM/helpdesk enterprise application
Need common enterprise systems for Fleet & Facilities
Need statewide tracking system to manage contracts and expenditures on contracts
Enterprise document imaging/scanning
Design a case management model to be generic – for enterprise use –across divisions
Financing projects – more disciplined approach, perform post project performance measurement
Suggestions to capitalize and depreciate IT equipment
Barriers to IT integration - local departments are independent; Counties are in different degrees of IT maturity with different resources
Application sharing - have DOIT begin to collect software components, require same architecture, common data definition
Legislative constraints of data integration causes the loss of cost-saving opportunities
Increase IT funding to foster new initiatives that increase efficiency
Suggest funding for the full implementation of a state and local government network to link partners to facilitate data sharing, customer service, and management for public programs
Need greater data integration between divisions

PeopleSoft Comments

Few view PeopleSoft as generally positive, most don't
Need more PeopleSoft end user training; problem of high turnover for data entry personnel
Of 60 agencies, 10 are fully on PeopleSoft financials
Do not have budget to implement PeopleSoft properly
Need to fully fund all agencies to finish implementing PeopleSoft
\$30M needed to finish implementing PeopleSoft
Need change training and management; bring in organization that has done implementation successfully
Impediment to PeopleSoft – the State's accounting manual requires paper, sometimes colored copies for all financial and personnel transactions
PeopleSoft – need to be able to submit manual documents from remote offices

PeopleSoft eProcurement and HR is a failure
Need integration of contract approvals into eProcurement system
Need integration of budgeting software and HR information and financials
GMIS has not done a good job of planning
PeopleSoft is a barrier (HR, poor workflow); should be capitalized
Fix PeopleSoft - Make it enterprise wide, fix problems, make agencies use it (DOA, Auditor), don't force fit PeopleSoft into a manual paper system
PeopleSoft - Not using completely, was crammed down agencies' throats, the Auditor's office is not using it, chart of accounts is not detailed enough to get management decision data, didn't understand the business rules, bought excess features, turf issues - we know what's good for you
There is lack of training and buy-in of PeopleSoft
PeopleSoft is great software, but get very poor communication and implementation support from GMIS
PeopleSoft driven by the wrong people – needs to be driven by the auditor's office – agency is still heavy on paper processing; feel they have taken steps back with PeopleSoft, not forward; PeopleSoft is not doing what it was expected to do; some transactions used to take 48 hours, now take 3 weeks; reporting is highly complex; being driven to vanilla PeopleSoft functionality; having many workflow/approval problems – wrong items routed to wrong people; big problems with benefits – same as other agencies; communication issues: changes in processes not communicated, unannounced server reboots cause huge data losses; no documentation exists that is accurate
RECOMMENDATION: Form a cross-agency user group to work with GMIS and share experiences, resolve issues, etc; GMIS reports to this group to communicate issues, get feedback

Technology Management

Agencies with federal funds need specialized (non-standard) accounting
One agency has mostly their own systems due to support – a centralized system support would not know their priorities or critical processes
To reduce inefficiency: lessen statewide projects with zero or negative performance/productivity impact; delegate more authority to agencies from ITOC; streamline process to develop and procure contracts for software and consulting services
Agency is collaborating with other agencies, communicating electronically and sharing data – they do not feel that they are a silo
Need to reduce complexity of IT procurement
Attorney General's 45 days contract approval process is too long
Make JTAC mandatory for all courts to eliminate manual data entry
Need remittance processing machines to become more efficient
Agency systems are run by DOIT; DOIT does not have enough staff on duty, some are inexperienced; DOIT staff does not take the heat from citizens when something goes wrong, the agency is
Information not readily available due to disparate databases and paper files
Legislature needs to know that an IT expenditure also has on-going costs
ITOC needs better standards and ROI tools – more is needed than a one page analysis of an IT project
Before funding a project, requirement should be to present a comprehensive business case assessment for decision criteria to justify new projects as well as resource availability, needs, and available support utilizing outside agencies
DOIT needs to be price competitive to commercial sector
IT classification and salaries – need to hold people accountable for achieving goals and working standards
Build systems to survive an election turnover
Give tools to departments to measure accountability
Need to capture data once as close to the point of origin as possible
DOIT budget is 15% lower over 3.5 years; needs more resources to be a useful supplier of IT services
Need timely implementation of high-speed network connectivity to local departments and local partners

Need staff training to use the broader capabilities of IT beyond word processing and spreadsheets
Have old applications but it would be cost prohibitive to replace them
Need basic computer training to use existing systems more effectively
Agency has Novell networks but can't afford to change
Significant dollar savings potential: video conferencing system (to reduce transporting costs), Tele Medicine
– use of electronic medical records for low-cost data availability
Established standards & centralized management - saved \$50,000 in 1st IT equipment purchase
State needs a generalized licensing package
DOIT - service is good and makes sense; price reasonable but agency has no budget to pay for the services;
cost structure discourages using DOIT services
Need communication and education of the intent, objectives and capabilities of ITOC
The ability to actually realize cost savings by reducing personnel costs is really irrelevant due to an agency
typically just moves people around
Dedicated funding presents problems
Access Indiana does a good job on the front end but can be more cost effective on the back end
Use GIS to track Enterprise Zone taxes
Data mining, analytics and performance management is agency's key focus
Improve paperwork via imaging and digital technologies
Agency uses internal financial systems with combined data received from State Auditor, State Treasurer,
State Personnel and operating division within the agency in order to obtain meaningful management
information to make IT decisions
Quick/easy payback initiatives: imaging, data manipulation and data analysis technologies
Currently pulling information manually from various databases into a consolidated database; need to
automate; need electronic signatures
Expand GIS deployment on the web; there is one application now and many planned in the future – work
closely with accessIndiana
Shared processes are mostly within the agency due to many unique regulations driven by specific legislation
DOIT has the same issue: inconsistency, do not know who one will work with, just as expensive as outside
vendors
Agency has an internal application developer methodology adopted by their Data Management team; also
developed standards for the agency
Issue with DOIT: communication – similar to GMIS, not proactive – causes a lot of unnecessary
troubleshooting inside the agency
Agency does not use DOIT help desk except for backbone issues (agency help desk staff does a very good job
– agency sees high value in having the help desk close to users)
Agency able to do all levels of service and repairs internally – lots of specific hands-on knowledge
ITOC very helpful when they are used; another agency view – do not use ITOC much – just to get approvals
as part of the process
Planning on using web services, allowing on-line capabilities (like paying taxes w/direct deposit), voice
recognition, validation (e.g. SSN, licenses, etc.)
Biggest barriers to key initiatives is blending of funds, State & Federal restrictions on uses of data
Bad customer service from GMIS – need to do much more work with end users
State needs to do better communicating goals, mandates, and intent
Agency has “more than a handful” of legacy financial systems - how do they migrate to more contemporary
systems?
Need to consider how to deal with federal mandates; how to hook up with PeopleSoft and still meet federal
specs?
DOIT needs to market themselves better, be more business-oriented; communicate what they provide with
clear costs and benefits (like a vendor) – DOIT has to compete with the private sector; they are more of a
“manager of services” than “provider of services”
Agency follows DOIT standards, but have been able to find better deals in the vendor market for Filenet, MS
Project, etc.

Positive impressions: NetG training, infrastructure projects, like to have DOIT managing the network
Working with DOIT and using their services requires scheduling very far in advance with very little leeway
ITOC has provided excellent security policy & planning leadership

Need more mandates (e.g. email)

accessIndiana is a convenient, single point of access for citizens and businesses – increasing State government efficiency and effectiveness; there has been a significant increase of traffic and on-line transactions; has received many national awards and recognitions; was built and maintained without appropriations of tax dollars – self-supporting; have decreased fees over the past 3 years

Technology Architecture

Many agencies are running their programs on the DOIT system

Need more funding for DOIT to build basic infrastructure

Experience with centralization of hardware has resulted in increased costs (?)

Same brand of hardware should be used for ease and lower cost of maintenance

Using DOIT for web application hosting, mainframe services, and communications

70% of PCs in agencies did not meet ITOC standards

DOIT “backbone stuff” is done well

Many email system are still in use; should standardize

Need single sign on, single email

Benefits of moving to standard tools (email, IM, etc) don’t justify costs

8.4 State Vendor Witness List

Testimony Date	Vendor	Representatives
3/5/04	Crowe Chizek	T.Hubbard
3/5/04	IBM	S.LeSturgeon
3/5/04	Ciber	B.Fisk
3/5/04	Bearing Point	K.Greer C.Scheidt
3/5/04	Maximus	D.Tan, B.Hornbuckle
3/19/04	Unisys	R.Scott
3/19/04	Accenture	N.Beadle
3/19/04	Interactive Intelligence	K.Towle
3/19/04	Haverstick	J.Kizer

8.5 State Vendor Testimony Summary

Vendors' Selected & Abbreviated Interview Notes – 2004

The following are selected comments, ideas or suggestions made by vendors during their interviews with the commission. The testimonies are not identified by vendor due to the commission's desire to maintain confidentiality. Statements may have been reworded for readability and consolidated in the case of similar thoughts.

The portal function and design is very good

A good job is being done by DOA in getting out RFPs

Communication with the vendors is not good nor with the agencies

GMIS cannot set rules (guidelines) for use of PeopleSoft wisely – the procedures are different for the same function in the different agencies

Can benefit from imaging if perform the homework first, especially FSSA

Study Sallie Mae for good IS practices

Investigate business process reengineering, especially cross agency application

DOIT – love/hate relationship with the agencies – agencies will avoid involving DOIT until they have to

Centralize infrastructure support, e.g., not all agencies and entities are on Microsoft Enterprise Agreement (quantity purchase discounts)

Look at the mission and vision of an agency, set the goals, and then determine the metrics

DOR advertises their measurement system

Use cross-agency shared services, e.g., how many agencies have a collection function, also payment processing centers

Use SWAT teams to focus on specific state services/functions

The Indiana web site should be organized from a citizen/taxpayer perspective

Funding, decisions, implementation are at the agency level vs. enterprise perspective

Initiatives – energy management, procurement transformation (more like private industry, reverse auction), selling surplus

Consider using DOR's Public Sector Value model

Experience working with the State has been favorable

Experience working with DOIT has been favorable

Spent too much time and money to get a project off the ground – review and discuss, over and over – suggest involve a private industry task team to set timelines and milestones

Budget dollars are eliminated or re-allocated

Reluctance to spend in order to save

Need to be proactive when considering disaster recovery

Easy opportunities for saving – DNR reservation call center, and PERF/TRF

Migrate to open standards systems to save on management and maintenance of many servers performing different functions

Consolidating servers in Wisconsin saved \$90,000 per person – reduced headcount by 50 - 60

Bidding process is dysfunctional; a “we” versus “them” attitude; State needs to be open by sharing information with the vendors

Provide guidelines for the expected pricing (budget) of a proposed project; some states already supply that information; gives vendors a guide as to what solution to propose

Implement an Enterprise Application Integration tool to permit inter and intra-agency communications between disparate systems and to save costs

Standardize document imaging systems

Concern about DOIT/ITOC responsiveness and pricing

State needs a citizen database for demographic data
Need a system of accountability to track all contracts
Concentrate authority to mandate control of IT – more toward the commercial organizational example
If there an Enterprise Approach to technology, the State will spend less
Need to have someone with authority to implement enterprise solution
Federal funding cannot be commingled – causes silo mentality
We do not know what we are spending
ITOC is perceived as a gatekeeper – maybe members should rotate
There should be a process to investigate new technologies
No linkage between vision and strategy and execution
Contracts, once awarded, take 3 months to sign; this is too long and, in the meantime, technology may have changed
Buyers may purchase more than needed due to long procurement cycles
Hardware cost accounts for only 15% of total cost of operation
Open technologies should be evaluated

8.6 State Peoplesoft Vendor Testimony Summary

PeopleSoft Vendors' Selected & Abbreviated Interview Notes – 2004

The following are selected comments, ideas or suggestions made by Peoplesoft vendors during their interviews with the commission. The testimonies are not identified by vendor due to the commission's desire to maintain confidentiality. Statements may have been reworded for readability and consolidated in the case of similar thoughts.

Many email systems but no single sign on
Need standardized project management methodology
PeopleSoft is set up to be an electronic enabled paper based system
Auditor requires a paper trail – purchase orders are processed with 7 paper copies with different colors
A new employee's information is keyed into PeopleSoft, that information must be sent to State Personnel Department on paper, then sent to the Auditor of State on a different form
Budget agency using an old system
Change management to train people to use new software and setting attitudes in the right direction was not done
E-payroll and electronic stub saved Minnesota \$750,000 annually
Moving Auditor to PeopleSoft would create a savings of \$400,000 annually (hardware/software maintenance only)
To create accountability, reduce and control fraud, reduce redundancy, and save money, need to fully implement PeopleSoft Financials, including the Auditor
To account for every purchase, roll out eProcurement
PeopleSoft HRMS – use it as intended and cease duplicating the work on paper
Fund the training
Implement eApplications (ePay) and cut down on significant data entry – eliminate DNR's annual summer problem of having to add 1800 people to the HR system
Reduce printing forms and do them on line
Consider changing IT governance – make the CIO a cabinet level position
Have employees take their medical benefits as pretax saving the state \$300,000 annually in social security tax
Need a clear mandate from the Governor and the legislature, and funding to implement Peoplesoft
Need buy-in by executives and some pushing to move implementation further
The State has taken a real-time system and turned it into a paper-based one
7 copies of each PO are required to be sent to the Auditor in separate colors
Auditor's system has not been updated in 10 years; \$170,000 per year maintenance cost; a paper trail is required
It is difficult for the State to gain benefits from technology because the government doesn't let go of people – just moves them around
FSSA uses spreadsheets for their financials
State Budget Agency uses a legacy system, not PeopleSoft
Cannot allocate personnel costs to multiple categories
Indiana has spend a total of \$35 million on PeopleSoft yet implementation success has been limited
Have not spent adequately on change management; the usual cost is 35% of the project cost; Indiana has spent less than 5%
Open enrollment has been a fiasco; no dollars on change management and training; also State did not distribute benefit plan early enough for people to make choices
Enterprise software must be driven from the top down
GMIS does not report to the CIO

The State will never be paperless until the Auditor gives up paper
How to fix the PeopleSoft mess – government must declare it to be a statewide priority
RFP process is problematic; publishing and distribution is good
IDOA process is good
There is little cross fertilization and communication – silos
Poor cross-agency application use
Poor work flow – need process reengineering
Auditor printed 84 forms, took three hours to print
No GMIS authority to set policies and rules for use
Would help to share long term plans with vendors
Announce in advance what RFPs are to be issued
Invite vendors to meet and offer ideas for projects that are under consideration; also be involved with strategic planning
Standardize RFP form and content across all agencies
Too many vendors in the BPA program – 50 now
Have a \$250,000 cap, if larger, use RFP/BAA
Implement statewide imaging – huge savings
Examine Sallie Mae for excellent technology use
Agencies are reluctant to work with DOIT
Assets are not managed
Economies of scale are not utilized when purchasing – not using State's buying power
Agencies do not know what is available from DOIT
DOIT & ITOC are consulting organizations but they are not really consulting or delivering value – need to re-purpose the groups to be consultants
They need to understand customer problems and vendor solutions, then match solutions to problems

8.7 Gartner, Inc.: Cost Savings Opportunities

Cost Savings Opportunities

Opportunity	Time	Tech. Risk	Org. Risk	Benefit	Investment
Consolidate IT procurement	Low	Moderate	High	High	Low
Create Project Management Office	Low	Low	Low	High	Moderate
Centralize portal management	Low	Moderate	Moderate	High	Moderate
Centralize desktop application management	Low	Moderate	Low	High	High
Create an Enterprise Architecture	Low	High	High	High	High
Renegotiate Network Rates	Low	Low	Low	Moderate	Low
Renegotiate Contractor Labor Rates	Low	Low	Low	Moderate	Low
Consolidate vendor contracts	Low	Moderate	High	Moderate	Low
Telecommunications line Audits	Low	Low	Low	Moderate	Low
Create web templates	Low	Low	Low	Moderate	Low
Discontinue buying proprietary hardware	Low	Moderate	Low	Moderate	Moderate
Defer purchases of desktop products	Low	Low	Low	Low	Low
Cell phone usage	Low	Low	Low	Low	Low
Break-up large projects and defer pieces	Low	Moderate	Moderate	Low	Low
Server Consolidation (Physical)	Moderate	Moderate	High	High	High
Create a shared-services environment	Moderate	Low	Low	High	High
Convert networks to VPN	Moderate	Moderate	Low	High	High
Help Desk Consolidation	Moderate	Low	Moderate	High	Moderate
Centralize e-mail	Moderate	Moderate	Moderate	High	Moderate
Centralize application development	Moderate	Moderate	High	High	Moderate
Enable Shared Risk/Reward contracts	Moderate	Moderate	Moderate	High	Low
Centralize security/virus access software	Moderate	Low	Low	Moderate	Moderate
Server Consolidation (Capacity)	Moderate	Moderate	Low	Low	Low
Pay for IT investments with bonds	Moderate	Low	Low	Low	Low
Consolidate Mainframes	High	Moderate	High	High	High
Centralize financial management	High	High	Moderate	High	High
Move applications to the web	High	Low	Moderate	Moderate	Moderate

Time:

Low= 0-6 months

Moderate= 6-18 months

High= >18 month

Gartner

8.8 Agency Accomplishments & Initiatives

As indicated earlier in the report, there are numerous examples across state government of outstanding technology implementations and highly effective utilization of technology to drive operational efficiency. During interviews, agencies described to the commission IT projects which have been implemented or are currently underway which are expected to make their operations more efficient and effective. The following list provides a sample of some of those initiatives:

DOR

Increasing the use of Internet and self-service options for taxpayers

We have implemented and continue to enhance technology support to provide more visual presentation of large amounts of data to aid the decision-making, planning, service delivery, administrative and management tasks and activities within and outside the agency

Customer Service Center – Office Customer Service Route & Scheduling, completely automated routing

Awards & Recognition: National Electronic Coordinating Council, Cost Effectiveness Through E-Government “Electronic Express Filing”; Center for Digital Technology “Best of Breed” for Returns Processing System; Digital Government 1st of 49 states for Paper to Electronic Filing; Govspotcom “Top-Notch Website” Recognition for Indiana’s Government Portal; National Performance Review Board, Hammer Award for Prism Program of Motor Carrier Services; National Performance Review Board, Hammer Award for Taxpayer Services Fed/State TeleFile Program; National Association of Computerized Tax Processors, Outstanding Work with Software Developers

Intelenet Commission

Self-Funded Model – Service fees based on connection type, Fees have fallen over the past three years, Grant funds help schools, libraries, and universities pay for connectivity through the State Network

New Services and Capabilities Coming Soon – I-Light2 and the Broadband Working Group, Wireless, Entry level services

State Portal – *accessIndiana* – every agency, every branch represented, operated successfully since 1995, public-private partnership model

Hoosiers accomplish online in 2003 via *accessIndiana* - 280,000 license plates renewed (+21%), 20,000 driver licenses renewed, 20,000 wildlife licenses (+87%), 82,000 limited criminal histories (+103%), 100,000 professional licenses renewed, 46,000 campground reservations made

Awards & Recognition – 2004: MIT Digital Government Award - Bureau of Motor Vehicles Digitally Certified Driving Records Service; Indiana Geographic Information Council Award for Achievement in GIS in the State and Federal Government category - Who’s Your Legislator?; Center for Digital Government Best of the Web Competition, 2nd Place; Center for Digital Government Digital States Survey, 4th Place

Awards & Recognition – 2003: 3rd place - Brown University eGovernment Study, 3rd place, Center for Digital Government's Best of the Web contest (4th place in 2002); 6th place - Center for Digital Government's Digital State Legislatures Survey; Best of Breed - Center for Digital Government, NECCC Value in Technology Achievement overall winner - DOR's I-FILE service; Brown University Taubman Center for Public Policy's Survey of State eGovernment Performance, 3rd place

Awards & Recognition – 2002: Center for Digital Government's Best of the Web Contest, 4th place; Center for Digital Government's Digital State Survey 8th place overall; Cost Effectiveness Measurement Inc. International Survey of Retirement Fund Web Sites, 2nd place for Indiana Teachers' Retirement Fund Web site; Government Solution Center's Pioneer Award, 1st place for Indiana State Police Limited Criminal History search Web application; Progressive Policy Institute State New Economy Index, 4th place in Digital Government; Brown University eGovernment Study, 1st place; International Economic Development Council "Best of Class" for Indiana Department of Commerce Web site

Case Study: Services That Work – *MyHealthLicense* – 78% of physicians renewed professional licenses online during May and June renewal period, 82% registered nurses got licenses online during September and October renewal period, *My Indiana License* is now preferred renewal method for HPB

INDOT

Gone to great lengths to align IT projects to their IT strategic plan and business goals. Has well defined IT strategic plan/direction. Has very detailed 10-year communications plan

Shares software with other states' DOTs

Jointly develops software with other states – pooled initiatives; also has been an active participant in jointly sharing development costs of new software for state DOTs

“Major misconception we have heard frequently – agencies are ‘silos’ or ‘islands of information’. Not true for INDOT. We are working with multiple agencies and other entities on IT projects.” Works closely and shares data with State Police, Revenue, Health, State Auditor, IDEM, DNR, C-TASC

Federal Highway Administration – exchange automated data FBI, Dept. of Homeland Security, etc.

In conjunction with the Indiana Counter-Terrorism and Security Council (C-TASC), the FBI and many other state and local agencies, INDOT is participating in developing the national Emergency Response Network (ERN) in a pilot program for the entire country.

Developed an Extranet application that allows private design consulting firms to submit plans and receive corrections without having to produce and submit expensive Mylar and paper drawings.

Bar coding software is being implemented in our fleet and inventory management system

INDOT has also been working in conjunction with the Indiana Department of Health on GIS to obtain and align with the INDOT Base Map all available geo-coding for the state of Indiana.

IDOA/GMIS/SPD

Implementation of PeopleSoft Benefits Administration for all employees receiving State benefits

Implementation of PeopleSoft's web based employee self-service benefits enrollment (2 for health and one for life)

Implementation of PeopleSoft E-procurement module for all agencies using Department of Administration Procurement division

Implementation of the Bureau of Motor Vehicles on PeopleSoft full financials

Phase 1 implementation of the Department of Correction on PeopleSoft full financials – This implementation was for a selected number of facilities within DOC. Phase 2 will rollout the software to the rest of the agency

Implementation of PeopleSoft Inventory module

Completion of a high-level fit/gap analysis of PeopleSoft financials for FSSA

Completion of a major upgrade of PeopleSoft financial modules from a client server environment to a web based environment

Implementation of web based employee self service panels for certain employee information such as life insurance beneficiaries, emergency contact information as well as employee contact information such as email addresses and telephone numbers.

In process is completion of upgrade of PeopleSoft Human Resource Software; implementation of PeopleSoft Human Resource web based job application process; implementation of PeopleSoft Human Resource web based employee performance review process; complete implementation of PeopleSoft E-procurement functionality including paperless procurement, strategic sourcing, contract tracking, and other major expenditure categories; complete implementation of PeopleSoft Human Resource Time & Labor module; the procurement and implementation of a enterprise solution for Fleet Maintenance and Facilities Management software integrate with PeopleSoft financial modules

BMV

Implemented the MyDriverLicense renewal service on the internet

Implemented digital license plates for better inventory control in the future

State of Indiana leads the nation in its use of technology that allows electronic records to be digitally certified and delivered from the accessIndiana Web site (Winning the 2004 Digital Government Award for the most innovative pilot/prototype program)

Implemented electronic certified driver license record system for court use, 21 counties currently participate in CATS

Establishment of Central Verification Processing for all CIS document submitted as identification

Social Security Number verification program through US Info Search

Planning future connectivity with Social Security Administration, scanners for CDL Testing, electronic fingerprinting machines, USPS address integration

FSSA

Implemented a state-wide electronic child care voucher system, using Point of Service (POS) swipe card technology and electronic funds transfer systems to replace paper claims processing, resulting in faster payments to providers and improved security and accuracy in the child care subsidy program.

FSSA became the first state agency to implement a new classification system for IT employees to reflect modern job duties and market-based compensation; thus, improving our ability retain talented employees and save over \$5 million by converting contract IT employees to state employees.

Negotiated a new child support system vendor support services contract at an annual savings of \$1.7 million.

Selected a vendor to provide system support and one dozen possible enhancements to our statewide child welfare computer system at a minimum savings of over \$2.7 million annually compared to our current contract costs.

Reduced general agency IT overhead by over \$1.25 million through the elimination of contract positions.

Completed a service operations benchmarking study which shows our cost per user for network services and desktop support is just over one-half the industry benchmark cost for government units. Despite our low cost, user satisfaction remains consistently above industry benchmarks for customer service.

Over the next year there are several major projects that we wish to complete. These include: conversion of all contractor positions identified as part of the IT reclassification project to state employees; updating and re-publishing the FSSA IT Architecture Standards and Technology Vision strategic plan; expanded use of the agency's data warehouse to greater use over by multiple divisions for their respective program data storage and reporting needs; begin implementation of the remaining People Soft financial modules with the existing People Soft HR and E-procurement modules, as well as the FSSA Contract Management System; development of comprehensive career ladder and training requirements for all FSSA IT employees; implementation of a single, comprehensive case management system in the Division of Disability, Aging and Rehabilitative Services to replace three existing case management systems; consolidation of distributed computer systems where feasible to achieve greater system support savings; development of shared data base administrator support services across multiple application environments for greater efficiency and reliability in maintaining critical databases.

ISP

A backlog of Mug logs from the Photo Section in 2002 has now been reduced.

The backlog of traffic tickets and traffic dispositions has disappeared and are being entered as they come into the Data Section.

Get the ARS reports (Criminal Cases & Criminal Arrest) to be put on the intranet. All other reports are already on the intranet.

Amber Alert system up & running smoothly in 2003.

Validations sent out to all law enforcement agencies on missing children cases.
(We will begin to do this twice a year.)

Requirement of semi-annual validation of missing children entries by law enforcement agencies.

Provide technical assistance and training to all Indiana State Police Posts on the use of the Lost Child Alert Technology Resource (**LOCATER**) system.

Training & presentations on the AMBER Alert Indiana Plan to new ISP recruits, 911 operators and Dept. of Natural Resource officers.

Enhancement of Missing Children website & bulletin to include age enhanced photos provided by the National Center for Missing & Exploited Children.

IDEM

Collection and analysis of environmental factors (examples; OAQ data is used for Smog Watch web site, water sampling information is used in Assessment Information Management System and then reported to EPA, OLQ collects data on sites and uses the data to determine permit limits, remediation plans)

Visualization of environmental concerns via maps and geographical information systems (“what’s happening in my backyard”, environmental justice plans)

Provide education and technical assistance to the public and to the regulated community thru IDEM’s website

Collaborate with C-TASC and SEMA in the creation of the First Responders Internet Map Services (our tools, skills)

Collaborate with DNR on the Wellhead Protection Program (our infrastructure, skills, s/w)

Currently share location data with INDOT, ISDH, and DNR (currently storing digital Orthophotography on our infrastructure, as well as sharing data via the Spatial Database Engine or SDE at IDEM).

C-TASC is currently working on grants that will provide additional data from the local emergency management and preparedness agencies

Through Computer Assisted Activity Tracking System (CAATS), local air agencies can track air permits, currently City of Indianapolis is connected, and City of Evansville is ready to go after they attend training

ISDH

Started using IT to promote advances in the diagnosis and treatment of disease in Indiana. The ISDH and the Office of Medicaid Policy and Planning (OMPP) have begun the Chronic Disease Management Project. The project is designed to improve the health outcomes for qualifying Medicaid enrollees with specific diagnoses. This is accomplished by providing a software tool that encourages primary care providers to use current best practices in addressing those specific diagnoses. The software tool will also support data reporting for chronic disease incidence and prevalence to the ISDH. Chronic diseases are the leading causes of death and disability. Measuring trends in the occurrence and location of these conditions will help public and private agencies to develop and implement targeted health programs. The Project can also encourage primary care providers to use best practices for all patients, not just Medicaid patients.

The ISDH along with SEMA, CTASC, State Police, and other agencies is using IT to improve our ability to respond to emergency situations including acts of terrorism and bioterrorism. The timely reporting of data about sick people or incidents to local and state authorities will facilitate more timely responses to identify

causes and implement appropriate response plans. To accomplish this requires integration of data, communication, training, and response.

Uses IT for standard information functions such as recording data about health events (e.g., births, deaths, disease incidence); providing support to administrative functions (e.g., payroll, accounting); and program management (e.g., tracking program performance against goals). The ISDH also uses IT to support integration and analysis of data to detect patterns of risk. Using statistical analysis tools such as SAS and geographic information tools (ESRI), and data integration strategies such as operational data store, the ISDH is developing a capability to conduct more sophisticated analyses of health data to detect patterns of contributing factors or disease spread that may enable the ISDH and other agencies to provide more effective prevention programs to reduce the impact of disease on the population.

DNR

In process of integrating IT functions – 20 divisions, autonomous, very diverse, previously each submitted a separate IT budget

Realigning resources by centralizing – working on 3-year IT plan

Proactive - searching for common functions in order to coordinate and consolidate

Formed teams to get feedback and buy-in and not affect change by edict

70% of PCs didn't meet ITOC standards

Implementing point of sale system for hunting and fishing licenses

Automating campsite and inn reservation systems

Established standards & centralized management - saved \$50,000 in 1st IT equipment purchase

DWD

Unemployment Insurance Modernization (UIM) project will allow for workload leveling among DWD resources; will use imaging, replace batch processing, use web services, allow on-line capabilities (like paying taxes w/direct deposit), voice recognition, validation (e.g. SSN, licenses, etc.)

Economic development program: Indiana@Work (WorkKeys)

Three years ago, DWD elevated the CIO position to Deputy Commissioner

Brought IT to the goal & policy making table (not through another deputy); better visibility of issues and improved resource allocation

Resource sharing - part of IHETS / Access Indiana/Intellinet network; sharing a T1 with FSSA Bloomington office (Voc Rehab); soon to share a fiber optic line downtown w/ BMV

Would like to add electronic portfolios where credentials, assessment scores are published in e-resumes for employers to browse (IUPUI pilot)

Future vision includes increased sharing of network, technology, facilities to enable "one-stop shopping"

8.9 INDOT's Perspective

INDOT was very cooperative and provided ITWG with copious data related to their use of information technology. As part of their testimony, INDOT provided the following statement to express for the record their view of centralized statewide IT management vs agency-based IT management.

INDOT does not believe consolidation of IT among major agencies will work efficiently or effectively. The State of Indiana is an enterprise, but it is an enterprise with multiple different business missions. FSSA and INDOT, for example, are two of the biggest agencies in the state and have almost half of all state employees. But they have almost nothing in common as far as their missions are concerned (except at the most abstract level of being of service to citizens). Agencies need to be more efficient and need to use technology but the technology must be in alignment with the agency mission. The one exception may be back-office or administrative functions that agencies have in common, but these can be extremely difficult as well, e.g. PeopleSoft. INDOT believes a better option to be software and technology that can use the Web, messaging software and other technologies (sometimes called Service Oriented Architecture) to provide services to any other application or area that needs data. That can preserve investments in mission critical systems, reduce costs and provide the data sharing needed as well.

...from interview notes...

INDOT recommends that the present governance structure be dissolved and replace with "communities of interest" – major agencies with similar missions and goals. ITOC should have authority for only smaller agencies and provide coordination of efforts for the larger agencies. Presently, there are too many agencies with dissimilar goals and technical backgrounds

8.10 Transforming the IT Organization for the State of Virginia

Transforming the IT Organization for the State of Virginia

by

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State government IT organizations have traditionally been quite decentralized, but several factors are currently moving them towards increased centralization. Based on research primarily from private sector organizations, this article first describes some advantages and disadvantages associated with various IS governance designs. Following a brief discussion of special governance issues in state governments, the current transformation underway for the IT organization in the State of Virginia is then presented, along with a discussion of key success factors.

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July 2004

Introduction

IT governance has been a lasting topic of interest among business managers. In recent years, as IT has been recognized as being of major importance to a firm's competitive strategy and business operations, IT governance has also been recognized as critical for achieving strategic IT alignment (Brown 2003), and experts claim IT governance structure greatly can influence of the IT capability of a firm (Weill 2004).

Traditionally, government institutions within the U.S. have not generally faced the same demands and conditions as commercial enterprises. Compared to the hypercompetitive environments some businesses face, the environments of state governments could be characterized as relatively stable. Although IT today is a vital part of any organization's daily operations, government institutions are also not traditionally known for being at the cutting edge of information technology. Further, in terms of overall governance, state governments are usually highly decentralized: many agencies enjoy a high level of autonomy and can operate quite independently of each other.

But today changes are underway: in many state governments significant budget deficits have led to an acute need for increased efficiency and control, and in this wake, efficient management of IT has become an issue for the state as well (Newcombe 2004, Welsh 2003). In addition, many state governments are in the process of implementing ERP system, and the general public is expecting a higher level of service quality delivered via the Internet. As a consequence, some highly decentralized state governments are seeking to centralize their IT organizations.

This article examines the case of one state government, the Commonwealth of Virginia, and its effort to reform its IT organization. Facing a major budget crisis, a new governor started a sweeping campaign in 2002 to make the state administration more efficient. One of the crucial elements in his strategy was information technology, including changing the IT governance model. In 2003, the state had been recognized as having the best Internet portal and was ranked in 6th place for IT service delivery (govtech.net 2004)

The article begins with a short summary of IT governance designs, with a focus on advantages and disadvantages. A separate section discusses some special governance issues in state government. Then the article examines what has been done to reform the IT organization in the State of Virginia, followed by some key success factors observed from this case.

Centralized versus Decentralized

The IS literature has identified several IT governance organizational models, primarily based on organizations in the private sector. In addition to the *centralized* and *decentralized* model, a *federal* governance model and different variations of hybrid models have been identified and described.

Centralized Governance Structure

In centralized governance structures the decision authority lies with the corporate IT managers or with a centralized IT unit. One of the advantages of centralized IT governance is operational efficiencies due to economies of scale. It also enables creation of a shared vision for IT, and increased coordination and control (Ulrich 2004). On the other hand, large centralized IT units have been associated with bureaucracy and less responsiveness to business unit needs. A central governance model might be particularly suitable for enterprises with a corporate strategy of related diversification (Brown and Magill 1994).

A *Shared Services* structure is a variation on a centralized structure. Under this model, business units voluntarily give up some decision rights and pool their IT assets and personnel with other business units for an "insourcing" arrangement. This way, the unit can gain benefits not available under a decentralized structure (Brown 2003)

Decentralized Governance Structure

Under a decentralized model, the decision authority resides primarily with business unit managers. This type of IT organization has been associated with a higher flexibility in responding to customer needs, and could therefore be more suitable for corporations pursuing unrelated diversification strategies. Decentralized models are often referred to as a consumer-driven approach. Because decentralized governance structure can promote higher responsiveness to particular business needs, this model would also fit companies operating in a highly unstable industry environment. A successful implementation of decentralized governance structures has also been associated with business unit managers having adequate understanding about IT and IT management practices (Brown and Magill 1998).

Federal and Hybrid Governance Structures

A *federal governance structure* is a government arrangement in which a central unit has the primary responsibility for the IT infrastructure, but the individual business units have the authority for decisions concerning the employment of strategic applications of IT. Under this model, the company can enjoy cost reductions and economy of scale through centralization of IT operations, while at the same time preserving the autonomy of individual divisions to encourage local innovation and to support specific business unit strategies.

In addition to the three schemes described above, many companies mix and match different governance structures to obtain a model customized to that particular organization's needs. Some companies decentralize a subset of IT functions to some business units, but not to other business units in the same enterprise (Brown 1997). These arrangements, called *hybrid models*, are more complex IT government arrangements employed to create an even better alignment of IT functions (Agarwal and Sambamurthy 2002).

Exhibit 1 sums up some of the general advantages and disadvantages with centralized and decentralized governance models. A federal model combines elements both from centralized and decentralized structures, thereby capturing benefits from both models.

	Advantages	Disadvantages
Centralized	<ul style="list-style-type: none"> Organizational efficiencies due to economies of scale Leverage buying power (shared sourcing) for hardware, software and network Increased coordination and control of resource allocation Shared vision for IT Organizational capacity to respond to complex or high risk projects that require special resources Facilitates a unified response to 	<ul style="list-style-type: none"> Often bureaucratic and possibly inefficient Overemphasis on standardization over results Less aligned with specific business unit strategies

	the outside world	
Decentralized	<p>Autonomy to the business unit</p> <p>Higher flexibility and responsiveness to particular business need</p> <p>Facilitate closer collaboration between IT and business</p>	<p>Could be difficult and expensive to introduce new technology</p> <p>Harder to create a unified company presence, for example on the Web</p> <p>Sets up organizational barriers to buy-in for cross-organizational systems</p>

EXHIBIT 1: Benefits and Disadvantages with Centralized and Decentralized Governance Structures.

Trends

Beginning in the early 1990s, the trend was to move away from central to federal governance structures. At present, the trend in business is towards more centralized and more shared governance. There are several factors that seem to drive this trend.

First, the role of IT has become more prominent in corporate strategy, and is often critical to enabling rapid business innovation in areas like product, services, customer relationship, and supply/demand chain management. Successful business innovation requires a higher level of collaboration between IT and business executives (Agarwal and Sambamurthy 2002).

Another driver toward more centralization has been the emergence of enterprise resource planning (ERP) packages, which offer integration across functions and business units. Moving to an ERP platform typically includes recentralization of previously decentralized IT resources and responsibilities (Brown 2003).

In addition, the pace of change in the IT field requires organizations to pay close attention to human capital. To ensure timely development of critical skills, this responsibility is given to a central unit. In addition, gathering IT workers in a larger professional environment seem to make the workplace more attractive to competent IT workers.

Finally, a more company-wide reliance on external partners has led many organizations to give the overall responsibility of external relationships with IT vendors and consultants to a central group. This gives the organization more control and leverage (Agarwal and Sambamurthy 2002).

Coordination Mechanisms

Regardless of the choice of governance structure, there is a need for coordination mechanisms to bridge the gaps between the various divisions, either IT or business units. These are referred to as *horizontal* coordination mechanisms, or mechanisms for creating *lateral capabilities*.

Of the many mechanisms that have been identified in organizations, two of them are called *structural overlays*. Structural overlays can either be formal groups, like a steering committee, or formal roles, like cross-unit integrators.

Structural Overlays under Centralized Governance Structure

Centralized governance models supports coordination among IT divisions through the hierarchical reporting structure, but under this model there is a particular need for mechanisms that ensure cooperation between IT and business units (IT ⇔ Business).

Centralized Governance: IT ⇔ Business

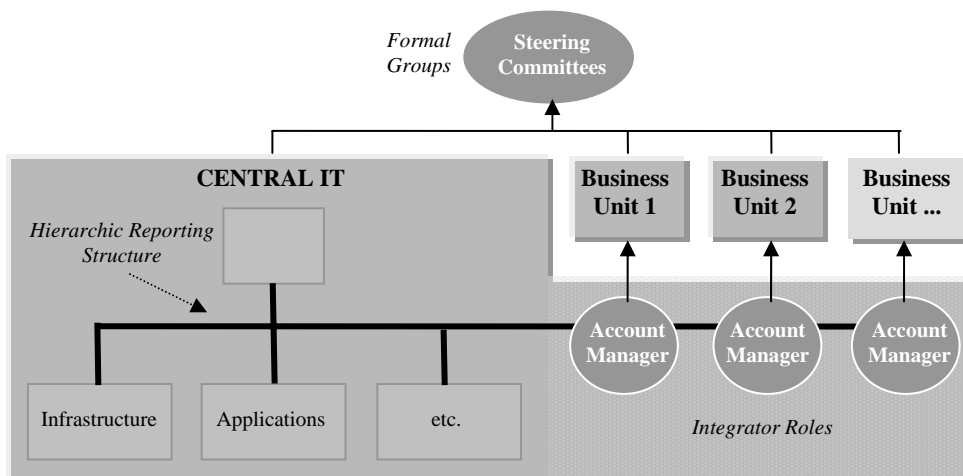


EXHIBIT 2: Structural overlays under central governance models.

A *steering committee* is a common type of formal group for creating a lateral capability between a central IT unit and multiple business units (IT and Business), as shown in Exhibit 2. Centrally structured organizations might also create a lateral capability with integrator roles by establishing *account managers* who have the full-time responsibility of "managing the IT account" for an internal business unit (Brown 2003).

Structural Overlays under Federal Governance Structure

Under the federal governance form, there is a need to align divisional IT managers with corporate IT managers.

Federal Governance: IT ⇔ IT

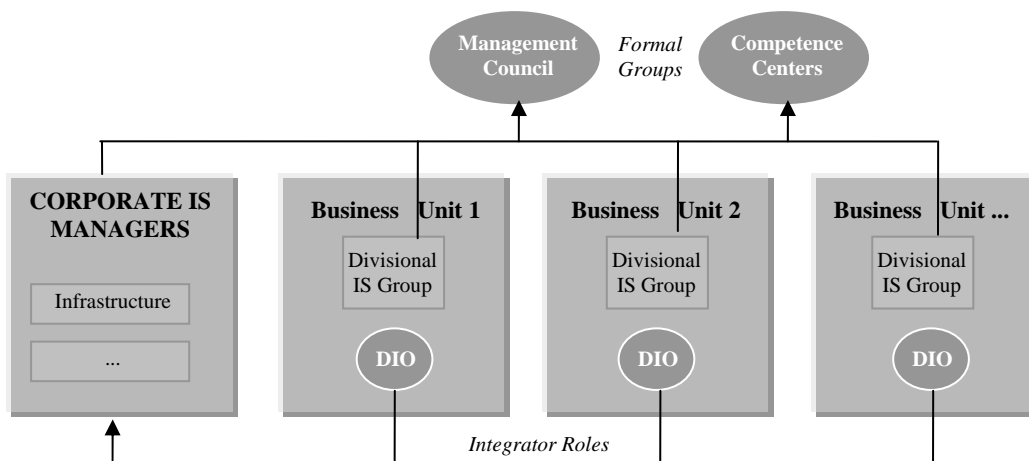


EXHIBIT 3: Structural overlays under federal governance models.

For federal structures, a formal group overlay sometimes called an *IT management council* is often employed to create a lateral capability between the central IT unit and the decentralized IT heads (IT and IT), as shown in Exhibit 3. Another example is *competence centers*, or *centers of excellence*, established centrally to develop and deploy IT skills critical to the organization as a whole. It is also common to have divisional IT heads in the role of formal integrators. In large organizations, these integrator positions might be held on an officer level and titled *Division Information Officer (DIO)* (Brown 2003).

In addition to these “*IT ⇔ Business*” mechanisms for central structures and “*IT ⇔ IT*” mechanisms for federal structures, findings from the field have shown that many organizations invest in *both* types of lateral capabilities regardless of their governance structure. For organizations with central governance, additional IT to IT mechanisms could be needed if the company is geographically dispersed, but not decentralized. Likewise, a federal IT organization could strengthen the ties between IT and business through a CIO advisory committee (Brown 1999).

Special IT Governance issues in State Government

Although state governments in the U.S. share many characteristics with business organizations, there are also many special conditions that need to be taken into consideration.

Power Balance among Branches

State governments are usually organized into three independent branches — the *Legislative Branch* (the lawmakers), the *Judicial Branch* (the courts and judges), and the *Executive Branch* (the Governor and government agencies). Most of the agencies or departments fall under the Executive Branch. This triad leads to a balance of power, with the legislative branch controlling expenditures and confirming appointments made by the governor.

Limited Terms

In contrast to many positions in the private industry, the executive leader (governor) and the personnel responsible for setting budgets (the legislators) are elected by the people. In some states, the governor can only serve a limited number of terms. The governor heads all or most of the state departments and agencies of the executive branch.

An inherent challenge in operating in the public sector then is the frequent change in personnel and the resulting shift in the state's policy priorities and agenda (Anderson, Bikson et al. 2003). This raises a serious issue of continuity.

There could also be balance of power struggle between the people who are elected for a short period, like the governor, and the people in the bureaucracy who often can "outlast" any elected officer.

Federal versus State Funding

Another important issue is agency funding. Some agencies receive funding both from the state and federal sources. These agencies are required to report their spending of federal funds to their respective federal agency. In other words, agencies may not have to account for all their spending to the head of their Executive Branch. This could potentially make it difficult to convince agencies to centralize and consolidate their resources (Newcombe 2004).

Political Agendas

Although politics also is very much present in private organizations, elected personnel belong to political parties with different political agendas. This adds an additional dimension to the issue of governance and structure of power not found in most private enterprises.

The IT Transformation for the State of Virginia

Drivers for Change

Similar to what often has been observed in private industry, the primary driver for an IT governance change in the State of Virginia was major financial difficulties. When *Governor Mark Warner*, a former venture capitalist in telecommunications, took office in January 2002, the state government in Virginia was facing one of the worst financial crises in decades. In the beginning of 2003, the shortfall totaled nearly \$6 billion (Associated Press 2003).

Warner established the *Governor's Commission on Efficiency and Effectiveness* and asked his predecessor, former *Governor L. Douglas Wilder*, to chair the commission. Its mission was to identify redundant and inefficient services, streamline and consolidate state agencies and programs, and to recommend how the state could use information technology better to improve service delivery and reduce costs.

As stated by *Secretary of Technology George C. Newstrom*, Governor Warner firmly put information technology on the agenda:

"Governor Warner said he wants to make sure that Virginia is perceived as a leader in technology in the global economic marketplace. I really like the way he chose those words. He didn't say, 'in the region.' He didn't say, 'make sure that you beat North Carolina.'"

He didn't say, 'somewhere in the United States we want to be prominent.' What he said was the global economic marketplace. Those words have a strong implication to me."

(COTS 2004)

One of the first issues to be addressed was determining what the state currently spent on IT. This proved to be a difficult question to answer, partly because of the highly decentralized IT governance structure. Therefore, Newstrom engaged *BearingPoint* (formerly KPMG) to carry out an information technology "due diligence" survey, and to make recommendations based on their findings in parallel to the work of the efficiency commission.

The answer to the question about IT spending turned out to be around \$900 million a year. This is approximately 3.5% of the state's total budget (2004-2006 biennium).

Recommendations Toward Centralization

Some of the commission's specific recommendations involved information technology with potential savings estimated to be \$100 million. Some of the major recommendations were:

Negotiate statewide contracts for information technology purchases that leverage purchase volume into substantial discounts

Consolidate administrative information systems projects across agencies

"...it is common practice for large businesses to decide upon a single ERP system for the enterprise. In Virginia at present, different agencies own every major ERP system on the market."

(The Governor's Commission on Efficiency and Effectiveness - FINAL REPORT)

Combine data centers to increase effectiveness and cost savings

Use technology to consolidate business processes

Use web-based technology to organize customer service activities

As the list of recommendations shows, many of the same influences found in private business settings were catalysts for the State of Virginia toward increased centralization of the IT function. First, it was announced to take a more prominent role in state government strategy. Second, the state wanted to achieve cost savings through consolidation of infrastructure and data centers, and through centralized procurement. Third, proposed statewide initiatives, such as offering seamless Web services to the public and effective utilization of ERP systems, would require a higher level of cross-agency collaboration and planning.

The preliminary work done by Governor Warner and Secretary of Technology Newstrom culminated in the release of *Virginia's Strategic Plan for Technology* (<http://www.techplan.virginia.gov>) in September 2002.

One of the focus areas of the due diligence report delivered by BearingPoint and incorporated into the proposed strategic plan was a reduction of IT staff. Their findings showed that the state could considerably reduce the total number of full-time equivalent positions by consolidating all information system personnel in a central agency. Other initiatives mentioned were to reduce the number of outside contractors and to convert some of the contractors into state employees.

Gaining Legislative Approval

The strategic plan drawn up by the Governor and Secretary of Technology consisted of eight significant initiatives, one of them being consolidation of IT infrastructure and the provisioning of centralized services via a technology utility. To achieve these goals, a central IT agency, *Virginia Information Technologies Agency* (VITA), was established on July 1, 2003. The new agency merged three former agencies and two former boards.

One of the biggest challenges during the planning phase of this major restructuring effort was to obtain buy-in from powerful agency heads and IT workers. The original plan was to transfer IT workers from all 91 agencies into this new agency (VITA), which meant reorganizing into a centralized IT governance model. Further, all the IT personnel of the agencies were to transfer to VITA to at the same time, in order to get the benefits of the cost savings as soon as possible. But this part of the plan met considerable resistance, both among the agency heads who were accustomed to wielding considerable control over their IT resources, and the IT workers themselves. There was also a group of state employees who criticized the Governor and Secretary Newstrom for relying too heavily on a report produced by outside consultants, instead of the views of veteran workers within the state agencies. The creation of a "VITA-Concern" discussion forum on Yahoo was one of the visible signs of general frustration and discontent among the state employees during that time period (Dodd 2004).

Another thorny issue was the plan of making many technology jobs interchangeable to ensure a more efficient allocation of IT resources. Many agencies, though, insisted that they required unique skills that aren't interchangeable, and the workers themselves identified more with the respective agencies than with a central IT organization.

Secretary Newstrom led the effort to address the concerns of both the agency heads and the state IT workers, and the administration promised no layoffs due to the restructuring, instead pledging retraining and reallocation. After a period of intense lobbying from the agencies, compromises were made and an alternative plan was approved by the General Assembly. First, instead of transferring all agencies at once, the transition to VITA was to be carried out in stages over an 18-month period. The small agencies would make the transition to VITA first, then medium-sized agencies, and lastly the largest agencies. Second, not every IT employee would work for VITA. About 1,100 application developers would remain in specific agencies. Still, the agencies would need CIO approval for any new major applications.

Nevertheless, the challenges met trying to centralize the IT function were similar to those of an extensive corporate merger (VITA 2004b). Being a highly decentralized entity, the Virginia state government was not conditioned to rapid or substantial change initiated by a central authority. The IT workers also experienced a culture shock due to being transferred to an entity that was wholly new to them.

The final result was an IT organization following the principles of the *federal governance model*. The central unit has the main responsibility for infrastructure, while the agencies hold the greater responsibility for the strategic deployment of IT and applications development within their own IT departments.

Appointing an Oversight Board

During the restructuring planning phase, there were also a tug of war between the legislative branch and the executive branch. Legislative leaders liked the idea of consolidating IT, but balked at having the new VITA agency and the new CIO reporting to the governor, which would yield more power to the governor.

Therefore, the lawmakers proposed an independent board consisting of four members appointed by the governor, four members appointed by the legislative authorities, the Secretary of Technology, and one non-voting auditor. The compromise agreed on was the establishment of an oversight board called the Information Technology Investment Board. The intention was to create a board with a corporate mindset: positions were mainly filled with individuals from the private sector who had either business and/or IT backgrounds. Since these board members lacked any formal attachment to the government environment in general, the board would be better positioned to offer a depoliticized, bottom-line orientation.

Hiring a New CIO

The strategic plan included hiring a CIO who would head the newly established VITA. To ensure continuity beyond Governor Warner's single term, the new CIO was to be offered a five-year term, which would overlap the Governor's term by three years.

One of the first assignments of the IT Investment Board was to appoint a Chief Information Officer for the first time. For this position, the Board was looking for a person with a strong information technology and business background - a person who could match the qualities of CIO's in privately held firms. To attract such a candidate, the Board agreed upon offering the new CIO a record high salary, which would make the person one of the highest paid CIOs in state government in the country. This strongly signaled how important the Board and the Governor thought this position was.

The final choice fell upon Lemuel C. Stewart, Jr., who assumed office February 2004. Stewart had more than 30 years of previous IT experience, within both the private sector and state government.

The Resulting IT Organization

The resulting IT organization includes a federal governance structure with new structural overlays. VITA has the responsibility for the IT infrastructure and procurement, while the respective agencies keep the responsibility for IT applications that are not enterprise-wide. Exhibit 4 summarizes VITA's primary responsibilities, and Exhibit 5 is the current organization chart.

Operation of the IT infrastructure, including all related personnel, for the executive branch agencies declared by the legislature to be "in-scope" to VITA

Governance of IT investments, in support of the duties and responsibilities of the Information Technology Investment Board and the Chief Information Officer of the Commonwealth;

Procurement of technology for VITA and on behalf of other state agencies

and institutions of higher education.

EXHIBIT 4: Primary responsibilities for VITA.

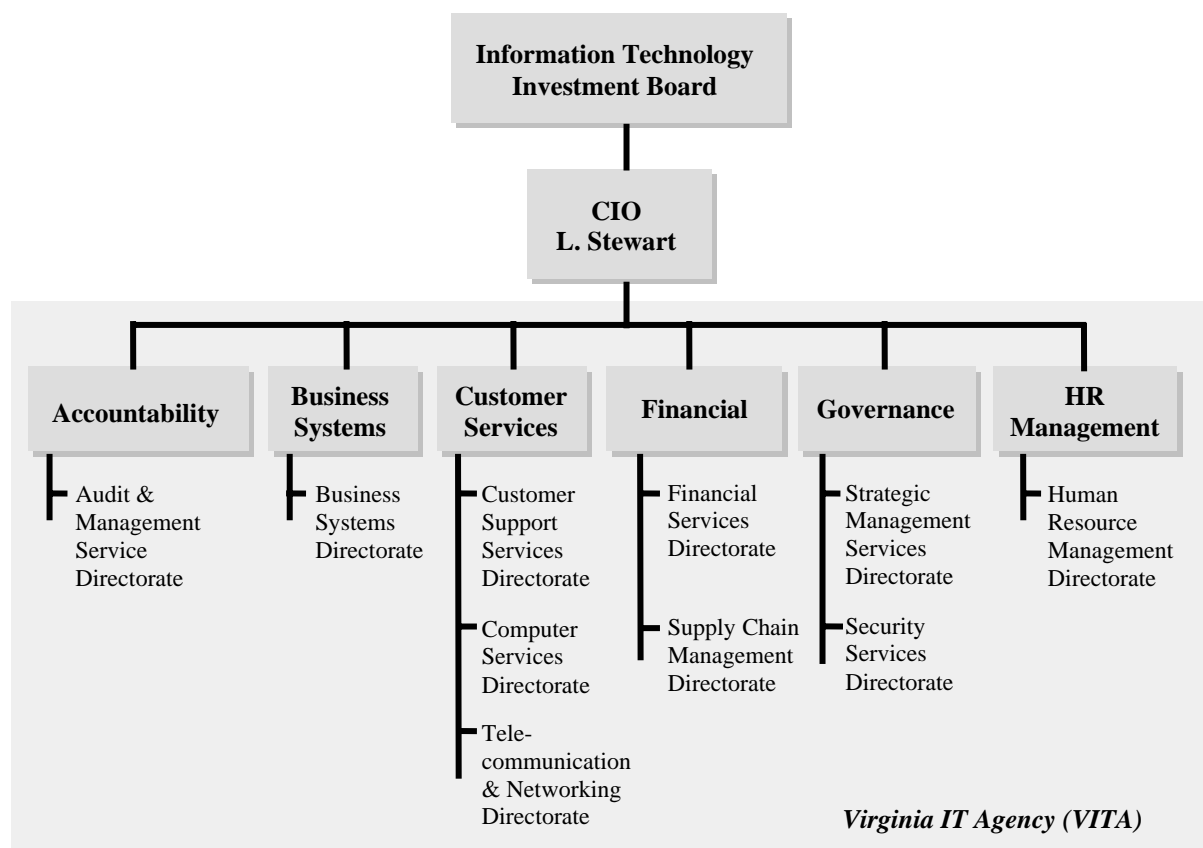


EXHIBIT 5: Organization Chart for VITA.

Structural Overlays and Processes

To facilitate the federal model, the Board and VITA have also put in place several formal mechanisms to increase the control and coordination between the central IT unit (VITA) and the agencies.

Agency Strategic Plan for IT - All agencies are responsible for developing an IT strategic plan which outlines planned technology initiatives within the agency. The CIO is responsible for reviewing and approving the plans.

Project and Procurement Approval – All technology projects and IT procurement requests exceeding \$100,000 must be approved by a project management unit under the Strategic Management Services Directorate of VITA and the CIO. Major IT projects (those greater than \$1 million and those that are mission critical) must also be approved by the IT Investment Board.

Project Oversight Committees – Major IT projects are subject to periodic review by the CIO. For these types of projects, the CIO establishes oversight committees consisting of members from the

agency and from VITA's project management unit. For multi-agency projects, a committee including members from all affected agencies is established.

IT Policies Liaison - The head of each state agency designates a liaison who is responsible for the agency's compliance with the procedures, policies, and guidelines established by the CIO.

Accomplishments and Remaining Challenges

Over the past year, the technology reform in the State of Virginia has received a lot of publicity, most of it favorable and praising. In 2003 the state was a recipient of a *NASCIO Recognition Award*, a program that honors outstanding achievements in the field of information technology. *The Center for Digital Government* named the Virginia's Internet portal the best of any state in the nation. The same center also announced that Virginia had jumped from 28th place to 6th place among the 50 states in the annual ranking of how states used technology to deliver services (GovTech 2004). Still, the state has a long way to go before it can reach all of its ambitious targets.

As of May 2004, the transition of the small agencies had been completed, and the transition of medium agencies was in progress. Still, the biggest challenge remained: the transition of the largest agencies where the resistance was expected to be the highest. This revised timetable has also delayed the realization of the revised forecasted savings under the federal model. It will be several months before it is known how close the state came to the target of \$37 million in gross savings for 2004 (Newstrom 2003).

The original report of the Warner efficiency commission included two recommendations regarding the consolidation of administrative information systems across agencies, and the use of technology to consolidate business processes. As of May 2004, the State of Virginia has carried out the following projects:

Consolidation of Infrastructure and IT personnel connected to infrastructure

Centrally coordinating and revamping of the Web-based services to the public

Consolidation of email and voice telecommunications

"... a recent, successful review of 1-800-inbound voice services in all executive agencies yielded \$102,588 in annual savings from the elimination of sixty 1-800-inbound voice lines that were found to be unnecessary." (VITA 2004a)

Central governance and control of technology procurement and projects (Project Management Program)

Use of technology to improve and achieve cost savings in IT procurement

One unresolved issue is how the IT application developers remaining under their respective agencies will be managed. Earlier propositions stated that IT personnel could potentially be reallocated to projects that cut across multiple agencies, but it is uncertain how or if this will function in practice.

This relates to the larger issue as to how to achieve greater collaboration in the area of standardizing applications across agencies. For example, many other states are in the process of implementing statewide ERP systems, but such a coordinated ERP effort has not yet been undertaken in the State of Virginia. To obtain the full benefit of centralization, initiatives will need to go beyond infrastructure and data consolidation. The next step would be to achieve a higher level of integration of business processes, such as common back office functions supported by the same ERP package.

Similar to the private sector, one of the difficulties of improving efficiency in the state of Virginia is the lack of uniform reporting and therefore a lack of a baseline for comparison. Because each agency has been highly independent and autonomous, each has developed its own system for accounting for its expenditures. This leads to agencies accounting for IT expenditures differently (Goins 2004), and makes it more difficult to calculate what actual savings are realized.

Going forward, one of the biggest challenges facing the reformers is to convince the agency bureaucracies of the benefits of further centralization and cross-collaboration. In general, agency heads view their entities as unique and therefore believe their own processes and resources are required to fulfill their mission. Further, a part of their funding comes from federal sources and not the state government.

Key Success Factors

In summary, there were several factors that played a part in the success of this first phase of Virginia's IT governance reform. First, there has to be a strong driver for change, and in the case of the State of Virginia, the main driver was an external one: a deep financial crisis. The need for increased efficiency was something highly visible, and created the necessary pressure to legislate some drastic changes.

Second, the state had someone at the very top to strongly advocate and promote the initiative. Because Governor Warner put the reform on the top of his agenda, the change effort received necessary attention and priority. Warner has repeatedly been referred to as "the tech-savvy governor," and it is clear that his technology background added credibility as he championed the reform.

Third, the appointment of an independent board with members from the commercial sector moved IT governance issues away from political agendas and towards a more bottom-line oriented direction.

Fourth, particular consideration was taken to overcoming some of the special issues related to IT governance in state government. For example, the governor of Virginia is limited to one term. To ensure continuity in IT leadership, the current CIO's contract period overlaps the governor's term by three years. Attempts to resolve the issues regarding federal IT funding were also begun early on.

Lastly, the proponents of the reform understood that they would face problems similar to a major merger, and this meant they had to spend considerable time working with various stakeholders to address anticipated concerns and challenges. In addition to delivering numerous speeches and presentations, a memorandum of understanding was crafted and signed with each agency, and workshops were organized to ease the transitions.

Conclusion

Changing from a highly decentralized to a highly centralized IT organization structure is very difficult, even in the face of significant budget concerns. The compromise solution chosen for the State of Virginia is one that has been selected by many private sector organizations: a federal model under a CIO with IT infrastructure responsibilities. Structural overlays to ensure coordination between the centralized IT unit and decentralized IT groups were also put into place, and issues

special to this state government context were addressed by an IT oversight board with members from the private sector. Considerable attention to change management issues was also part of the transformation plan. Although the migration to the new IT governance structure is still underway, this case example demonstrates how an IT-savvy top executive was able to leverage a budget crisis context to initiate an IT governance change within a traditionally slow-moving public sector context.

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